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ABSTRACT

This document provides an alphabetical list of programs designed to improve the science education of minority groups and to increase their participation in science and science-related careers. Minority refers to such racial and/or ethnic groups as Blacks, Chicanos/Mexican Americans, Native Americans/American Indians, and Puerto Ricans. Programs in science include the physical and biological sciences; engineering and technical fields; health sciences; agriculture; science education and counseling; and some social sciences such as anthropology, psychology, and geography. Projects to improve mathematics competence were included only when they were an integral part of a larger program to improve scientific capabilities of minority students. Each entry includes an alphabetical number, program title, discipline, location, educational level, minority group involved/targeted, program dates, amount of funding, source of funds, number of participants, description, and name/address of contact person. An overview of the inventory (including scope; methodology; and descriptive profile by disciplines, minority group, educational levels, and program costs), description of programs illustrating approaches taken to increase minority participation, comments on using the inventory, and an annotated bibliography of other program inventories are provided. Also provided are three indices: an alphabetical listing of programs and a breakdown of programs by educational level and by discipline. (JN)

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AAAS Office of Opportunities in Science

Programs in Science for Minority Students

1960-1975

Compiled by
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1776 Massachusetts Avenue, N.W., Washington, D. C. 20036

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AAAS OFFICE OF OPPORTUNITIES IN SCIENCE

THE MAJOR PURPOSES OF THE OOS ARE:

- to increase the number of minorities, women and the handicapped in the natural, social and applied sciences;
- to increase the kinds of opportunities available to these groups;
- to increase the participation of minority, women and handicapped scientists and engineers in policy-making, advisory and managerial positions.

TO FULFILL THESE PURPOSES, the OOS is involved in many programs and activities. It functions as a *clearinghouse* on information concerning women, minorities and the handicapped; it acts as *liaison with other professional organizations* to help coordinate equal opportunity efforts; it works with the *Scientific Manpower Commission* on problems dealing with the recruitment, education and utilization of women, minority and handicapped scientists; and *within the AAAS* it encourages the increased participation of these groups and the consideration of issues concerning them in all programs and activities of the Association.

UNDER THE GUIDANCE OF ITS ADVISORY COMMITTEE AND PANELS, the Office has developed numerous programs to implement its objectives. The *Conference of Minority Women Scientists* was held in December 1975 to address the issues of the unique situation of minority women who face both racial or ethnic and gender-based biases in their pursuit of science careers. The Double Bind: The Price of Being a Minority Woman in Science, published in 1976, is a report of this conference, the first such meeting of minority women in science. The *Conference of Minorities in Science*, held as part of the AAAS Annual Meeting in Boston, February 19-21, 1976, assessed this country's efforts to bring about an adequate representation of minorities in the sciences. Proceedings will be published. The *Project on Native Americans in Science* is investigating the problems and developing strategies for improving the science education and opportunities available to Native Americans. It is also developing programs on ethnoscience and ethnomedicine, and on altering the attitudes of the general public and educators that are detrimental to Native American progress in technical fields. The *Project on the Handicapped in Science* seeks to improve the status and participation of handicapped scientists and to improve science education available to handicapped youth. One activity is to make professional meetings completely accessible to the physically disabled, as it recently did with the AAAS Annual Meeting. *Rosters of Minority and Women Professionals*, published in 1975, is an assessment of the uses and benefits of rosters as tools to achieve equal opportunity.

The OOS welcomes ideas, suggestions and help from all who are interested.

AN INVENTORY
OF
PROGRAMS IN SCIENCE
FOR
MINORITY STUDENTS
1960-1975

compiled by
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Preface

The preparation and publication of this inventory of science education projects for minorities was first proposed because of a need articulated by members of the AAAS advisory group, the Committee on Opportunities in Science. The broadly experienced minority scientists and educators on that committee expressed the conviction that there existed ample experience on preparing minority people for careers in science, experience that was not being utilized. Because the information on what has been done has not been readily available, each group that has sought to develop a program to improve science education for minority students has had to "reinvent the wheel." Persons who had "learned the hard way" were not being used effectively or efficiently as critics or resource persons in setting up science education programs for minority students. In their view, progress toward an increase in minority participation in the sciences is actually being hampered by a communications gap.

Neither was it possible, without a compilation of this information, to obtain an overall picture of the extent and emphasis of the total national effort in this area. Without a comprehension of what the efforts have been and how well or how poorly they have responded to the problem of underrepresentation of minorities in the sciences, it was clearly not possible to evaluate the effort nor to make policy recommendations.

The AAAS Committee on Opportunities in Science, therefore, thought this inventory and an evaluation of its substance ought to be a first order of business. The present publication does not achieve all that we had hoped for. The most important phase, the evaluation and recommendations, remains to be done. But the basic task of compiling and publishing the inventory of projects is now done. It is not fully comprehensive. Despite efforts to contact and follow up with many different organizations and individuals involved or possibly involved in projects suitable for inclusion in this publication, some programs have been missed. Some were missed because persons just did not respond, others because of a self-selection process which led individuals to exclude very small or non-funded efforts. Still others may have been lost in the layers between the heads of institutions and those individuals who were actually involved in efforts. Elapsed time itself has undoubtedly made some information hard to recover.

It is hoped that the publication of this information will stimulate people to send to the AAAS Office of Opportunities in Science any materials that may have been left out. If sufficient valuable information comes in response to this document, it can be compiled and collected for an addendum and published at a later date.

The wide variety of program information received and included in the Inventory leads one to believe that almost all types of possible programs are represented in this document. It is hoped that the user of this Inventory will be able to take advantage of the knowledge, expertise and skills that already exist among concerned individuals and will be able to add their own subtle adaptations that make a program more suitable for his or her particular region, budget, resources, racial or ethnic group or educational level. When the Inventory becomes a tool for greater creative efforts in minority science education, when the addendum is larger than the original, one purpose of its initial conception will have been served.

The AAAS Committee on Opportunities in Science believes that the Inventory is the first necessary step in a national assessment of science education for minorities. Any statement of past efforts to increase the participation of minorities in the sciences or the direction of any future efforts must take into account the hundreds of programs which have attempted to address this problem. It is hoped that the Inventory and a subsequent evaluation will become a useful tool for policy-makers who control those resources which could provide realistic solutions to a persistent and unyielding problem--the underrepresentation of minorities in science. A review of the programs described herein leads one to believe that where financial and philosophical commitment to improve the numbers of minority group members in a field is genuine and consistent over time, changes can be made. If the Inventory stimulates a real self-assessment and commitment to change in our educational institutions it will have accomplished an extremely important task.

Warren Washington
Chair
Committee on Opportunities in Science

I. AN OVERVIEW OF THE INVENTORY

The Scope of the Inventory

The Inventory is a survey of efforts made in the United States since 1960 to improve the science education of minority groups and to increase the participation of these groups in science and science-related careers. Although originally intended to span a fifteen year period, the Inventory actually includes programs undertaken or to be undertaken in 1976 as well.

For the purpose of this inventory, "minority" refers to those racial and/or ethnic groups which are significantly underrepresented in science relative to their numbers in the population, i.e., Blacks, Chicanos/Mexican Americans, Native Americans/American Indians, and Puerto Ricans. Asian-Americans and United States citizens born in South American countries other than Mexico were not included because they are better represented in the sciences and seem not to require special efforts to motivate and prepare them in science, though they may suffer other social and economic disabilities.

All levels of science education were surveyed. There are recognizable problems for minority students at every educational level, and there have been projects to attack the problems at each level. The scale of programs also varies widely; some are comprehensive, relatively well funded, on-going such as NIH's Minority Biomedical Support Program, and some are modest projects undertaken at individual institutions.

For the purposes of this inventory, the phrase "programs in science" is broadly defined and includes the physical and biological sciences, engineering and technical fields, health sciences, agriculture, science education and counseling, and some social sciences such as anthropology, psychology and geography, parts of which require extensive training in science. Projects to improve the mathematics competence of students were included only when they were an integral part of a larger program to improve the scientific capabilities of minority students.

The survey includes all types of efforts including curriculum innovations, experimental ways of teaching and organizing courses, motivational programs, summer programs, teacher improvement programs, recruitment efforts, counseling improvement, and many others directed toward increasing the number of minority students in the pool of potential scientists, engineers, technicians or health professionals. There were many traditional tutoring efforts and financial aid programs uncovered in the course of preparing the Inventory. Unless they were an integral part of a more comprehensive effort which included counseling, academic recruitment and/or some other components, these are not included in this volume. The development and pre-testing of many science education curricula have included minority groups, and many NSF-funded curriculum implementation efforts have included predominantly minority school districts. These were not designed specifically for minority students and have not been included in the Inventory although this information has been retained in project files.

The cost of the efforts included in the Inventory runs from zero to several million dollars. In addition most programs had unreported costs since they depended on donations of time, resources and/or facilities by numerous individuals and/or institutions.

Much valuable information has been collected in the process of compiling this volume. It is hoped that the amount of information on projects will increase and that educators will continue to share information on their efforts with the AAAS. In that way the AAAS Office of Opportunities in Science will be better able to serve its constituents bv functioning as a clearinghouse on projects in science education for minority students.

Methodology

A survey instrument was developed which outlined the type of information desired about each project (See Appendix A). Individuals were asked to supply: the name of the program; a brief description of the goals and methodology; an indication of educational level and demographic characteristics of the target group; outcomes and conclusions; locations; sponsoring institution; duration; name of project officer; title of reports; evaluation reports, if any; cost; and source of funding. They were invited to comment on the potential adaptability of the project to other educational levels and/or other racial/ethnic minority groups.

Appropriate cover letters and a brief description of the inventory project accompanied all requests for information. Many resources and much project information already existed in the files of the AAAS Office of Opportunities in Science. These were searched and this information catalogued for future use and for the names of individuals to be contacted for possible leads to other projects.

A number of organizations and institutions were contacted for information. These included the following:

1. Selected affiliated societies of the AAAS. Of the more than 240 professional organizations affiliated with the AAAS, approximately a hundred are expressly concerned with disciplines that were to be included in the Inventory.

2. Academies of Science. Over forty-six city and state academies of science are affiliated with the AAAS.

3. Minority scientific professional organizations. About twenty such organizations were contacted for information. (See Appendix B)

4. Other science, science-related and educational organizations, such as the National Education Association and other teacher's organizations.

5. All state supervisors of science and environmental education.

6. Selected local science supervisors, identified by other informants.

7. Science curriculum developers, obtained from the listings in the International Clearinghouse on Science/Mathematics Curricula Developments by the University of Maryland Science Education Center and AAAS Commission on Science Education. (9th report)

8. Minority colleges and universities. The chief academic officers at the historically Black institutions as well as at those institutions whose enrollment indicates a predominantly minority student population were contacted.

9. Majority colleges and universities. The chief academic officers at 450 institutions identified as having a substantial minority enrollment were contacted.

10. Corporations. Through the sources listed above a number of companies were identified as having contributed to various programs for minorities. They were contacted for information about additional programs.

11. National Research and Development Centers.

12. Museums of Science and Technology. The names were obtained from the membership list of the Association of Science-Technology Centers.

13. Participants on various symposia on minorities in science at AAAS and other scientific society meetings.

14. Committee on Minorities in Engineering of the National Academy of Engineering via staff contact.

15. Funding sources, governmental agencies and private foundations.

16. Individuals, referred by any of the above and by advisors to the AAAS inventory project.

Requests for program information were also made through a number of scientific journals and professional organization newsletters, including: Science, American Biology Teacher, Chemical and Engineering News, Chemistry, Journal of Chemical Education, Journal of College Science Teaching, Science and Children, Science News, The Science Teacher, Agronomy News, the publication of the American Association of Physics Teachers, and other organizational bulletins.

Other activities of the AAAS Office of Opportunities in Science placed staff in contact with individuals involved in projects from whom information was obtained. AAAS activities such as the National Science Foundation-supported Conference of Minority Women Scientists (December 1975) and the National Institutes of Health-supported Conference of Minorities in Science (February 1976) enhanced the information gathering efforts of Inventory compilers. The information gathering efforts of the AAAS Project on Native Americans in Science complemented the activities of Inventory project staff, especially in terms of identification of programs in the Native American communities.

Besides these numerous efforts at identification, the inventory staff undertook regular library bibliographic search, and commissioned searches from both ERIC and the Smithsonian Science Information Exchange.

Despite these efforts some science education projects for minority students have probably been missed. On some that are included the full information requested is not available. On some projects of which the staff is aware, information was so very sketchy as to not warrant inclusion. One major problem that has confronted AAAS inventory staff in identifying projects and determining their suitability for inclusion has been that of terminology changes over the years and accomodations to the nomenclature of federal guidelines that have obscured the meaning of "minority." Between 1960 and the present the literature is filled with programs for various groups described as: Negro, Black or Afro-American; Mexican American or Chicano; Native American or American Indian; educationally, culturally, economically or socioeconomically disadvantaged. "Minority" has been used collectively to refer to all these groups, as well as in instances when only "Black" was meant. The term as used generally includes Asian-Americans, and it is therefore sometimes difficult to determine those projects aimed at the underrepresented groups. The term "Spanish-surnamed" or "Spanish-speaking," usually used in federal terminology, does not help to distinguish between projects aimed at Puerto Rican and Chicano students, and also fails to distinguish these groups from United States citizens from Central or South American countries other than Mexico. "Educationally disadvantaged" sometimes includes non-minority females as well as white males from Appalachia or other economically depressed areas. The variations in definitions obviously confuse attempts to locate suitable projects. Wherever possible the minority designation on programs was cross checked against racial/ethnic group data from other sources.

Project information obtained was screened by the compilers where an initial decision was made as to its appropriateness for inclusion in the Inventory based on the criteria established in the original proposal. Where project information was incomplete or where data was insufficient to determine whether a program fit the criteria for inclusion, attempts were made to contact project heads for additional information. Material was classified, coded and filed using a three level system broken down by educational level, discipline and targeted minority group.

The judgment of the program director (or person submitting program information) as to the classification or categorization of their individual program was usually accepted. Where this classification had not been made by project persons, the compilers made these decisions based on the available information. Because the judgments were made by various individuals, similar programs were sometimes placed in separate categories. For example, one program involving teacher training was classified at the professional level and another at the elementary level. Both are technically correct since one classification is based on the participating group, the teachers, and the other, on the group to be impacted on, the students. Similarly, when specifying minority groups, some project heads specified the participating groups and others the targeted groups, even if no member of a targeted racial/ethnic group was actually involved in the administration of the program. The

Inventory staff attempted to clarify this in the entries wherever possible.

"Fine grained" and "coarse grained" discipline breakdown presented a similar problem to the staff. Where staff employed a classification which more appropriately described a program, it was reclassified. Other breakdowns were collapsed.

Draft entries were prepared and then reviewed by inventory staff, several members of the advisory group to this project, and other knowledgeable individuals. Final decisions as to inclusion were made at this time.

The Inventory staff made more than 2000 contacts by mail and telephone with individuals during the search for project information. These efforts resulted in the more than 350 direct project references and the more than 250 indirect references contained in this publication. Close to five hundred projects were sent into the AAAS. Some of these were toward a general rather than a minority student population; others were marginally useful; many did not have a specific science focus. Some material and leads on projects were received too late to be followed up and included.

Descriptive Profile

Of the 355 entries in the Inventory it can be said that there has been more effort in the health related and engineering related fields than in the sciences, more for Blacks than other minority groups, and more at the undergraduate collegiate level than at the pre-collegiate or graduate levels. No generalization about costs is possible at this point. The details are spelled out below.

By Disciplines. Around 30% of the projects listed were health-related, including pre-medicine, pre-dentistry, pre-veterinary medicine, optometry, nursing, the allied health fields and biomedical research. If the indirect references are counted, the number of health-related program activities aimed at minorities soars to around 50%. Another 30% of the programs are targeted toward increasing the number of minorities in engineering and the technical areas. Around 15% are programs in science education or counseling, environmental education, or general; many museum based programs were so classified. The natural resources areas, including forestry, fisheries, etc., make up around 3% of the projects. Of the remaining programs about 20% are directed toward a particular scientific discipline or combination of these.

It is possible that this sample of the universe of science programs for minority students may not be representative. It is also possible that the process of "lumping and splitting" may have obscured the numbers of programs. For example, there are over one hundred separate institutions which were involved in the American Chemical Society's Project Catalyst. If these are counted separately the number of programs in chemistry becomes very large; however, if counted as one program, the number of programs in chemistry dwindles.

If the number of individuals impacted on by programs could be determined, that might produce a clearer picture of the relative effort being exerted to bring minorities into different scientific fields and related areas. It is impossible to do this from the data collected in the Inventory, however, and probably from any data, since many outreach programs do not report the number of individuals contacted. The impact of programs is uneven; some are intended only to contact or expose students to science or science careers, while others attempt to provide academic, financial and psychological support to students throughout their pursuit of a career in a particular field.

It is felt, however, that the bunching of programs in the health fields and in engineering and technical areas as seen in this inventory is a true reflection of the allocation of human resources, available monies, and number of programs. The federal efforts to increase the numbers of minority and disadvantaged persons in the health fields is based on a clear need to serve the health needs of underserved areas and peoples, i.e., to improve the health care received by minorities and other disadvantaged persons in the United States. Here a clear focus existed and money was made available. Coordinating organizations, institutions and structures existed which could be mobilized to accomplish these ends. The energetic efforts now being made to increase the number of minorities in engineering are clearly a consequence of activities of the National Academy of Sciences Assembly of Engineering and its Committee on Minorities in Engineering, the Sloan Foundation, private industries, government, and the engineers' professional organizations. Here again a clear focus existed--a tenfold increase in the number of minorities in engineering by the 1980's. Money was made available, and coordinating organizations were formed to carry out specific parts of the total program.

By contrast, the same kinds of planning, resources, and coordination have not taken place in the sciences; no coordinated effort toward increasing the numbers of minority group members in these areas has been forthcoming.

Most of the funding for the health-related efforts has been from federal and/or state monies. The engineering efforts have been largely privately funded from both foundations and corporations. Their motivation seems in part to have been based on the need to fill future manpower needs and in part on the desire to meet future affirmative action goals.

By Minority Group. An examination of the breakdown of projects according to targeted or affected minority groups reveals an uneven distribution. While this data is superficially subject to an interpretation that one group is getting substantially more or less than some other group, it must be remembered that many other factors may act or interact to bring about such skewing. It must also be remembered that the "pie" which is being divided is quite small, and that even for the group which seems to have received the most efforts to date, these special programs have only just begun the task required.

Approximately 25% of the projects were listed as being for "all minority groups." The problems of interpreting this have been discussed in a previous section.(See p. 4 .) In many cases this is clearly a misnomer and a more accurate designation would be for "Blacks" or "Chicanos" but it is difficult if not impossible to separate actual "all" from targeted "all." Around 35% of the projects were specifically targeted for Blacks, 7% for Native Americans; 4% for Chicanos, and only one program specifically for Puerto Ricans. Six percent of the programs were aimed at Blacks and Puerto Ricans; 10% at Blacks and Chicanos; and the remaining programs for various combinations of these four racial/ethnic minority groups.

Viewed in another way, only about 12% of the projects did not have Black student involvement. This is probably due to any, all, or some combination of the following: the large size of the Black population relative to some of the other minority groups; the geographic distribution patterns of the Black population in the United States; the high visibility of Blacks; the existence of the Black colleges and universities where many of the projects were based; the political activity of Blacks; and a longer history of educational and professional involvement and achievement in the United States. (The very existence of the more than one hundred Black institutions of higher education illustrates this last point.)

The geographic distribution of the various combinations of racial/ethnic minority groups closely parallels the programs. For example, Black and Puerto Rican populations overlap in the large urban areas on the east coast and in the Chicago area, and these are the location of most programs for this combination of students. Many of the programs listed are based in the southeast where Blacks are the predominant one of the four minority groups represented. Most of the programs have an urban base, which again explains the lower representation of more rural-based populations such as Chicanos and Native Americans. An urban base for programs would likewise tend to exclude rural Black populations.

The Inventory staff was surprised by the number of programs aimed specifically at Native American populations. This can be interpreted in a number of possible ways relating to an increased awareness of the extreme need for Native American scientists, engineers and especially health professionals from those both outside and within the Indian communities; the relative geographic isolation of Native communities; and specific cultural need as defined by very diverse groups. Some programs have been developed by and for one particular group.

The number of programs targeted at particular groups or combinations of groups, although a useful indicator of effort is probably misleading. Although almost 90% of the programs have Black student involvement, the total number of projects is really small, as is the estimated number of affected individuals. Some programs affect very small parts of the population while others are more widely targeted.

By Educational Levels. More than 45% of the programs undertaken to improve the science education of minority students were aimed exclusively at the undergraduate collegiate level, while only 7% and 18% were specifically targeted at the elementary and high school levels respectively. These data become immediately significant if one notes that most minority scientists and educators identify the pre-college level as the one where there exists the greatest need for additional coordinated sustained effort to increase the pool from which minority scientists come.

This phenomenon is possibly explainable in terms of bias in our sample of the universe of programs. It is more than likely that small scale, individual efforts, receiving modest or no funds for implementation are the more characteristic pre-college programs and that school districts and state systems do not know of their existence. However, the likelihood is that this skewing in favor of college level programs is real, based on the desire for more immediate pay off in terms of the output of minority scientists, engineers or health professionals. It may also be that university faculty and administrators are more tuned into the grants programs of public and private funding agencies. Continued emphasis on the collegiate level will not support an increased participation in the sciences by those minority groups characteristically having extremely high dropout rates at the pre-college levels.*

Increasing numbers of multilevel programs include pre-college components. These are usually undertaken as recruitment and/or career orientation programs, some of which have academic enrichment components. Including these programs, more than 32% of all efforts are exclusively targeted for or include components aimed at the high school level; 14% of the programs with elementary school student involvement. Although 41% of the programs had some pre-college level involvement, few of these had provisions for following through, i.e., they were specifically for elementary, junior high or high school, for elementary and high school, or high school and college.

Cost of Programs. When the inventory program was conceived, it was hoped that some statement could be made concerning the total funding of these special programs. It is not possible to compare the relative costs of projects because of failure of program heads to report costs, inability to determine costs, and/or unreportable costs such as donations of time, resources and/or facilities. It can be said however that inability to obtain continued funding was the single most often cited reason for program termination. The Inventory contains many entries describing promising programs that were discontinued for lack of sufficient funding. It seems apparent to the Inventory staff that states,district school systems and institutions have not picked up and supported seminal programs that could possibly have contributed to a reversal of the underrepresentation of minorities in science.

Implications

A thoughtful retrospective evaluation of these 355 programs remains to be done. They should be examined by a suitable body of experienced persons, and their national policy and program implications made clear. Prior to that necessary next step, it is nevertheless possible to identify some basic needs just from the descriptive data on these pages.

First, there are some obvious gaps. The absence of programs that concentrate on the needs of Puerto Ricans has already been commented on. The lack of programs for students living in rural areas may well reflect a national inadequacy in science education for all rural students. There may also be needs in other culturally different communities especially when a language other than English is predominant. Accomodations to different cultural patterns, recognition of a need for bilingual education and response to this need are necessary if the programs are to meet the educational needs of culturally different, non-English speaking students.

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*Janet Welsh Brown and Shirley Mahaley Malcom, "Puerto Ricans Investigate Underrepresentation in Science Professions," Science 193 (6 August, 1976): 474-5 and Carter Marshall, "Minority Students for Medicine and the Hazards of High School," Journal of Medical Education 48 (February 1973): 134-9.

Also all continuing and future programs should be examined for their impact on minority women. We were not able to collect conclusive male/female data on the programs included in this volume, but we are aware from other sources* that minority women have faced additional barriers to education and careers in science.

Secondly, it is apparent that pre-college focus on the problems has not been accompanied by a pre-college focus on the solutions. While there is much support of the idea of programs designed to "save the savable," there must also be support for the idea of earlier identification of the potential survivors. Programs have generally not attempted to involve and educate the larger minority community especially the parents, as to the possibilities for careers in science. The influence of the minority community in shaping the expectations of minority youth has not been addressed in most of the programs.

The lack of information about and/or interest in programs for minority students in science at the state levels is not encouraging. As federal support for education (including science education) moves more toward the form of revenue sharing, the fate of special programs is called into serious question. As the federal government responds more and more to the questions of reverse discrimination, the very existence of targeted or special funding may be in doubt. It is imperative that ways be found to induce local and state educational systems to take on responsibility in this area and to institutionalize the efforts for minorities' science education improvement.

Finally, it is clear that special programs, while absolutely essential to increasing the numbers of minority group members entering the sciences, address only part of the problem and are only part of the solution. Increasing doubt as to the future of special programs gives an additional indication that major institutional change is absolutely essential if significant and continuous increases are to be made in the participation of all these groups in science, engineering and health fields.

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*See The Double Bind: The Price of Being a Minority Woman in Science, by Shirley Mahaley Malcom, Paula Quick Hall, and Janet Welsh Brown, AAAS Report No. 76-R-3, Office of Opportunities in Science, American Association for the Advancement of Science, 1776 Massachusetts Avenue, NW, Washington, DC 20036.

II. FOCUS ON CHANGE

In an attempt to address the various levels of the problem of increasing minority participation in science many approaches have been undertaken. A few of these outlined below illustrate the different types of projects and efforts contained in the body of the Inventory. (To avoid duplication, programs outlined in detail in this section are not included in the body of the Inventory. Where programs only mentioned in this section do appear in the Inventory, their listing is referenced by an entry number.)

Curriculum change. Many programs have attempted to effect change in the rate of participation of minority group members in science via changes in curriculum. Three examples will be outlined here: activities of the Institute for Services to Education (ISE); the National Center for Curriculum Development Coordination; and the ethnoscience curriculum developed by Carl Hime.

Institute for Services to Education *(ISE), Thirteen College* Curriculum Program (TCCP). ISE is a private nonprofit organization based in Washington, D.C., which assists educational institutions in faculty and curriculum development, planning and management, and research and evaluation. The Thirteen College Curriculum Program is a program for curriculum and instructional improvement involving ISE assistance to forty-five traditionally Black institutions. The project has developed a comprehensive innovative curriculum by developing course materials, by designing teaching techniques, strategies and activities that are motivating to the students and by involving teachers in continuous re-evaluation of their teaching effectiveness in terms of meeting student needs. ISE trains a faculty team from each institution which in turn implements the program in pilot form on their own campus. Progressively more of the institutional structure is included in TCCP as experienced project teachers assume the role of teacher trainer and coordinator. The aim is to assist each faculty member toward creative teaching which actively involves the student in the learning process. For information on the science activities of TCCP contact Dr. Cyrus Lawyer, ISE, 2001 S. Street, NW, Washington, DC 20009

National Center for Curriculum Development Coordination, State University of New York at Stony Brook. This planned Center would be directed at affecting the pre-college level (high school) education of minority students for the purpose of preparing them to enter engineering education. This major effort, funded by the Sloan Foundation, will be directed toward the development of educational materials and implementation schemes which will focus on increasing minority participation in engineering. The intents of the plan are to change significantly the educational experiences in mathematics and communications and to give the students career information in engineering and related fields, along with a sense of the excitement of learning in these areas. Dr. John G. Truxal, Director, Program on Technology and Society, College of Engineering and Applied Sciences, SUNY at Stony Brook, Stony Brook, NY 11790

Ethnoscience Curriculum, Many Farms School, Many Farms, Arizona. This curriculum, developed by Carl Hime, is specifically directed at incorporating traditional scientific knowledge and systems into the teaching of science in the elementary schools. Specifically developed for Navajo children, it included parental and community input and uses the discovery method of teaching and learning. Though specific in its content the ethnoscience curriculum is generally adaptable to other cultural groups. Mr. Carl Hime, Many Farms School, Many Farms, AZ

These three programs have entirely different foci and scale, but all three seek to change the ways in which minority students are taught/learn that may affect their future participation in careers in science and engineering.

Television. This promising medium has not been used to any great extent for the science education of minority youth. Some experiments have been undertaken locally to incorporate commercial-type messages aimed at parents and students about career opportunities for minorities in science and engineering. A major breakthrough has been made in programming for the mathematics education of minority youth.

Infinity Factory, developed by the Educational Development Center (EDC) of Newton, Massachusetts, is a series of programs aimed at teaching math concepts to Black and Hispanic students. It incorporates situation-story lines to teach math principles, while including cultural aspects of these minority groups. It is innovative, entertaining and instructive and a creative step toward teaching minority students.

Faculty development. Many programs seek to improve the science education which minority students receive by improving the quality of faculty at institutions in which student enrollmetns are drawn substantially from minority groups. Many of the now defunct National Science Foundation funded curriculum implementation projects (elementary and secondary levels) were directed at teachers of predominantly minority students. Inner-City Teachers of Science (ICTOS, entry #119) and the Texas A & I, Kingsville program for teachers of Chicano students (entry #65) are other examples of programs aimed at teachers of pre-college level minority students. Three major federal funding programs are similarly designed for improving science education for minority students on the collegiate level by enhancing the research capability of faculty (with or without substantial student participation): the National Science Foundation's Minority Institutions Science Improvement Program (MISIP); and the Minority Biomedical Support (MBS) and Minority Access to Research Careers (MARC) programs of the National Institutes of Health.

Minority Institutions Science Improvement Program *(MISIP)*. The NSF MISIP program makes awards in two categories: Institutional Improvement Projects for colleges and universities whose enrollment is predominantly composed of Black, Native American & Spanish-speaking students; and Scientific Research Initiation Grants for faculty at minority institutions. The idea is that improving the research opportunities for faculty, the facilities and the instructional capabilities of minority institutions will ultimately improve the quality of science instruction which the students receive. For information, contact Dr. Shirley McBay, Coordinator, MISIP, Division of Science Education Resources Improvement, Directorate for Science Education, National Science Foundation, Washington, DC 20550

Minority Access to Research Careers *(MARC PROGRAM)*. This program is designed to assist minority institutions in the training of greater numbers of scientists and teachers in health-related fields. The MARC Faculty Fellowship Program provides opportunities for advanced research training for selected faculty members of four-year colleges, universities and health professional schools in which student enrollments are drawn substantially from ethnic minority groups. These institutions may nominate faculty members to apply for MARC fellowships to support a period of advanced study and research training in graduate departments and laboratories as candidates for the Ph.D. degree or for postdoctoral research training in specified areas in the biomedical sciences. MARC Faculty Fellows are selected on a competitive basis. Awards may be made for up to three years of support. When their training is completed the Fellows are expected to return to sponsoring schools to do research and teaching so as to inspire and assist minority students to prepare for professional careers in the biomedical sciences and in medicine. For information, contact Mr. Elward Bynum, Director, MARC Program, National Institute of General Medical Sciences, NIH, Bethesda, MD 20014 (301) 296-7357

Minority Biomedical Support *(MBS Program)*. The purposes of this creative and successful program are to increase the numbers of ethnic minority faculty, students and investigators engaged in biomedical research; to broaden the opportunities for participation in biomedical research of ethnic minority faculty, students and investigators; and to assist in the provision of an appropriate setting in which the goals outlined above can best be accomplished. This program supports student participation in biomedical research activities with faculty at institutions with significant minority enrollment. For information contact Dr. Ciriaco Gonzales, Director, MBS Program, National Institutes of Health, Building 31, Rm. 4B04, Bethesda, MD 20014 (301) 496-6743

Institutional and Organization Focus

It is clearly evident that minority institutions and minority scientific professional associations have an actual or potential effect on the quality of science education which minority students receive as well as an actual or potential interest in increasing and developing minority participation in science careers. Increasing the activities and programs of minority institutions vis a vis science can only serve to promote increased participation in science by minority group members. This fact (along with the fact that most Black Ph.D.'s in science, for example, have received some part of their training at the historically Black institutions) has served as the rationale for many federal programs aimed at increasing minority participation in science. The recognition of these activities has led many industrial personnel to the minority institutions for an easily identifiable source of potential scientific and technical employees.

The activities undertaken by minority scientific professional associations (see Appendix B for a partial listing of these) and minority committees and offices of other scientific associations have included programs aimed at increasing the participation of minorities in science careers and improving the status and visibility of minority scientists in the larger scientific community. These activities can only support the direct training programs for students which are being taken at the institutional level.

In similar manner some majority institutions have established programs to provide personal and academic support to minority students. These "special programs" enhance the institutions' ability to train minority students in fields which they have historically not entered and where they are so clearly underrepresented.

The proposal of legislation in the 1977 NSF Authorization for "Minority Centers for Graduate Education in Science and Engineering" similarly attempts to address the need for creating structures in institutions for advanced scientific training specifically supportive of minority students.

The institutional and organizational programs outlined below are but a few of those undertaken to specifically address the need for producing more minority scientific professionals. Two of these special efforts are based in predominantly minority institutions: Spelman College, a Black women's college and New Mexico Highlands University, a predominantly minority institution, the largest minority group represented being Chicano. Three programs are organizationally focused: Minority Engineering Education Effort (ME^3), an independent program; Minority Introduction to Engineering (MITE), a program sponsored by the Engineers' Council for Professional Development (ECPD); and the National Consortium for Graduate Degrees for Minorities in Engineering, Inc., a cooperative effort between 19 engineering schools and 8 research centers.

Spelman College, Atlanta, Georgia. This effort is singularly significant in that it focuses on improving science education for and encouraging science career choices by women belonging to a racial/ethnic minority group. While most other efforts can generally address the problems of removing barriers to participation in science careers which are based on membership in a particular racial/ethnic minority group, this program addresses the "double bind" of racial and gender based discrimination which severely limits the numbers of minority women entering careers in science.* Spelman undertook a major program change to accomplish this effort. The components of this program included improvement of the science facilities; faculty development; establishment of a career, academic and personal counseling support structure; identification and recruitment programs; a summer academic enrichment program, etc. The prominent presence and involvement of minority women science faculty, and strong support from the administration are obviously features which have contributed to the success of this effort at major institutional change. Funding through various sources (federal and private) has helped to support this effort, as well as being able to take advantage of existing special programs present in the other institutions or under the general sponsorship of the Atlanta University complex.
Dr. Shirley McBay (formerly of Spelman College) Coordinator, MISIP, Division of Science Education Resources Improvement, Directorate for Science Education, National Science Foundation, Washington DC 20550

New Mexico Highlands University, Las Vegas, New Mexico. The special programs in allied health at this institution were developed for a culturally diverse student population, while addressing the needs of minority communities of the Southwest. A special two-year associate degree program in environmental health and a bacculaureate degree program in medical technology are two of the efforts at Highlands which have received funding through Allied

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*See The Double Bind by Malcom et al.

Health Professions Special Improvement Grants to enable them to more ably address the needs of minority students pursuing careers in these fields. Specifically funding was obtained to assist in teaching bilingual student populations, Hispanic and American Indian, via multisensory type instruction (video tape and audio tutorial laboratory). These programs seek to equip minority students to serve the health needs of minority peoples. The associate degree program in environmental health further provides training for students who cannot plan on four years of college preceding employment but also can provide a career ladder for those wishing to continue to a bacculaureate degree. These special programs extend the existing structures of Highlands which are directed toward the education of culturally different peoples.
Dr. Lora Magnum Shields, Director, Environmental Health Division, New Mexico Highlands University, Las Vegas, NM 87701 (505) 425-7511

Minority Engineering Education Effort *(ME^3)*, New York, New York. This effort was organized to identify and acquaint minority students at the pre-engineering school level with the opportunities offered by a career in engineering and to motivate and assist them in pursuing such a career. It seeks also to communicate to minority communities an understanding of engineering and the necessity for minority engineers. ME^3 has undertaken such activities as search and identification of eligible minority students who take the various college entrance examinations; distribution of lists of students to participating engineering schools; referral service for students; distribution of engineering information packets to students; national speakers bureau; and distribution of motivational films.
Executive Director: Richard T. Mullins, 345 East 47th Street, New York, NY 10017

Minority Introduction to Engineering *(MITE)*, Engineers' Council for Professional Development (ECPD), New York, New York.
The MITE program sponsored by the ECPD is aimed at exposing high school level (between 11 and 12 grades) minority youth to engineering to increase their participation in engineering programs (and ultimately in careers in engineering). These two week summer programs held at various universities across the United States give students a chance to learn of the various fields of engineering, engineering curriculum requirements and life in a college environment. (See also Inventory entry #314). Funding for this effort is obtained by ECPD through industrial and foundation contributions.
Executive Director: David R. Reyes-Guerra, 345 East 47th Street, New York, NY 10017 (212) 644-7685

National Consortium for Graduate Degrees for Minorities in Engineering, Inc., University of Notre Dame, Notre Dame, Indiana.
The Consortium is an independent non-profit organization of nineteen colleges and universities and eight research centers whose objective is to increase the number of minority men and women being granted advanced degrees in the field of engineering. To meet this objective the Consortium is implementing a summer employment-educational program that will provide minority students with three summers of work experience beginning after the junior year at participating research centers and up to two years of graduate education at participating engineering schools. The minority groups from which candidates will be selected are American Indians, Black Americans, Mexican Americans, and Puerto Ricans. It is anticipated that

students who obtain master's degrees through this program and who qualify and elect to continue studies leading to doctorates will be selected to Teaching Assistantships, Research Assistantships, or Fellowships at the participating engineering schools. The Consortium's funding is currently supported by annual fees of $15,000 paid by each participating research center. These funds, together with funding provided by each of the participating universities, support the student fellowships throughout the master's program.
Executive Director, National Consortium for Graduate Degrees for Minorities in Engineering, Inc., University of Notre Dame, P. O. Box 537, Notre Dame, Indiana 46556 (219) 283-3225

The scope of program activities must obviously be determined by the extent to which human and material resources are available, but what a program can accomplish will necessarily be based on how effectively and how efficiently those resources are used. It is toward affecting this phase that this document is directed.

III. HOW TO USE THIS INVENTORY

This document has many uses. Some of these were envisioned by those who conceived of the idea of the Inventory, others by Inventory Staff. Still others, we hope, will spring from the user.

We expect that this document will serve as a source of information and ideas for new programs and that program designers and implementers can and will build on the experiences of others. It is hoped that experienced individuals will be contacted in the planning stage of programs so that their ideas and suggestions can be taken into consideration prior to final commitment to a particular program form. It should be expected that programs will probably not be perfectly transferable and that modifications and local adaptations may be called for. This document can serve as ideabook, human resource directory, guide to program needs and to possible funding sources. If the evaluation phase of the *Inventory* project had been funded, the *Inventory* would be much more useful to you, the reader. That would have permitted some judgements as to the relative value of particular kinds of projects, their relative impact and some clear "should and should not" guidelines to project planning, implementation and evaluation. Those experienced in science programming for minorities will probably be able to glean some of this information from the material presented in the *Inventory*. Some form of evaluation is needed to put the total picture into perspective and to clearly delineate factors leading to the success or failure of efforts.

The program entries are listed alphabetically in the body of the *Inventory*. The alpha number is used in referring to a program in other parts of this document and in the indices. The italicized part of the title is the form used in constructing alpha order. You may wish to place other references to a program in the index to facilitate locating it. There are two indices included by the compilers: discipline and educational level breakdowns. A review of these may help in locating projects for a particular field or for a particular educational grouping. A brief scanning of the programs in the Inventory may help in identifying particular types of programs such as summer programs or curriculum development programs that might be transferable from other disciplines, levels, racial/ethnic minority groups, etc.

The information provided in each entry and the form of this is as follows:

Alphabetical Number Title of Program (Discipline)

Location

Educational Level (specific grade or level) / Minority Group Involved/Targeted / Program dates

Amount of funding / Source of funds / Number of participants

Annotation

Contact person, address, telephone number

Code

Educational Level:
Elem - Elementary
Sec - Secondary
Col - College
Grad - Graduate
Prof - Professional
Post-sec - Post-secondary, non-collegiate

Minority Group Involved Targeted:
B - Black
C - Chicano/Mexican-American
N - Native American/ American Indian
P - Mainland Puerto Rican

OTHER PROGRAM INVENTORIES: AN ANNOTATED BIBLIOGRAPHY

Information about minority programs already exists within an established body and in an organized form in some of the disciplines. Although the compilers solicited generally, they neither sought to duplicate these efforts,nor did they discourage or omit project information contained in these areas. Where material was received independently, it is contained within the body of the Inventory. Otherwise, the organizations and/or source materials are briefly outlined according to the nature of the information which they are able to provide.

Publications

Minority Student Opportunities in United States Medical Schools 1975-1976, Office of Minority Affairs, Division of Student Programs, Association of American Medical Colleges, One Dupont Circle, N.W., Washington, D.C. 20036

This very valuable book, edited by John H. Walker, III of AAMC contains descriptions of the minority programs of 108 of the 114 U.S. medical schools. It serves as a sourcebook to students as well as to those involved in administering minorities programs in medical schools. The 114 institutions were surveyed by the AAMC Office of Minority Affairs and were asked to provide "(1) specific information about recruitment programs for minority students; (2) admissions policies and procedures established specifically for minority applicants; (3) specific academic assistance programs designed to aid minority students either prior to or after matriculation; and (4) financial aid programs for minority students." There is enrollment information from some of the schools relative to numbers of minority applicants and admissions, and 1st year and total enrollment of minority students by racial or ethnic background: Black Americans, American Indians, Mexican-Americans and Mainland Puerto Ricans. There is also a list of institutions offering summer programs by type and target educational level.

This book is available for $2.00 from:

Association of American Medical Colleges
One Dupont Circle, N.W., Suite 200
Attention: Membership and Subscriptions
Washington, D.C. 20036

33 Programs to Increase Educational Opportunity for Minorities in the Health Professions, Association of American Medical Colleges, One Dupont Circle, N.W., Washington, D.C. 20036

This brochure briefly describes the Association of American Medical Colleges' subcontracts to increase educational opportunities for minority students in the health professions. The AAMC received its initial grant from the Office of Economic Opportunity in May 1969. These subcontracted programs were undertaken between 1969 and 1971. The thirty-three programs undertaken throughout the United States have focused on many different activities, including recruitment (primarily to medicine and dentistry), academic reinforcement, planning, retention and research; some concentrated on one discipline, others were multidisciplinary and involved students from secondary to post graduate medical levels. Each program listing included the name of the institution or organization, the name, address, and telephone number of a project officer, the duration of the project, and a brief descriptive narrative. The subcontracts described as listed in the table of contents are:

East Los Angeles Health Task Force
Southern California Cooperative Program
University of California, San Diego
Howard University College of Dentistry (District of Columbia)
Howard University College of Medicine (District of Columbia)
Medical College of Georgia, School of Dentistry
Mercer University, Southern School of Pharmacy (Georgia)

Central YMCA Community College (Illinois)
Cooperative Council of Illinois Medical Schools
Indiana Health Careers, Inc.
Student American Medical Association (Kentucky)
Maryland Hospital Education and Research Foundation, Inc.
University of Maryland School of Dentistry
The Health Student League (Massachusetts)
Tufts University School of Dental Medicine (Massachusetts)
Tufts University School of Medicine (Massachusetts)
Wayne State University, College of Pharmacy (Michigan)
"Project Break-Through," Minnesota Health Careers Council
The University of Minnesota Medical School and School of Dentistry
St. Louis University School of Medicine (Missouri)
University of New Mexico School of Medicine
State University of New York, Buffalo, School of Medicine
The Optometric Center of New York
Hostos Community College (New York)
"Health Planning Program," University of Cincinnati
Ad-Hoc Committee Concerning Admission to Professional Institutions
Pennsylvania Health Council
Students Concerned with Public Health (Pennsylvania)
Medical University of South Carolina
Meharry Medical College (Tennessee)
University of Tennessee, Medical Units
Texas Hospital Association
University of Virginia School of Medicine

Recruiting Minorities for Pharmacy - A Guide; Prepared by Office of Student Affairs, American Association of Colleges of Pharmacy, 4630 Montgomery Avenue, Suite 201, Bethesda, Maryland 20014

This guide includes summaries of programs being implemented in seventeen (17) pharmacy schools which received funds under either special projects grants or from the Office of Health Manpower Opportunity for academic year 1972-73. There is also an "Outline for a Model Minority Recruitment and Retention Program" authored by Dr. Kenneth R. Scott and Anthony L. Rogers (then a student) of Howard University. Each program summary includes the name and address of a contact person. Programs summarized in this publication were undertaken at the following institutions:

(1) University of California School of Pharmacy
(2) Florida A&M School of Pharmacy
(3) Mercer University Southern School of Pharmacy
(4) Purdue University School of Pharmacy and Pharmacal Sciences
(5) University of Kentucky College of Pharmacy
(6) Xavier University of Louisiana College of Pharmacy
(7) University of Maryland School of Pharmacy
(8) Massachusetts College of Pharmacy
(9) University of Michigan College of Pharmacy

(10) University of Montana School of Pharmacy
(11) University of New Mexico College of Pharmacy
(12) State University of New York at Buffalo School of Pharmacy
(13) Ohio State University College of Pharmacy
(14) University of Oklahoma College of Pharmacy
(15) Temple University School of Pharmacy
(16) Medical University of South Carolina School of Pharmacy
(17) Texas Southern University School of Pharmacy

Building Effective Minority Programs in Engineering Education, A Report of the Committee on Minorities in Engineering of the Assembly of Engineering, National Research Council, 2101 Constitution Avenue, N.W., Washington, D.C. 20418, September 1975.

This publication is the result of a study undertaken throughout the country to determine the programs and the component parts that appeared critical to increasing minority participation in engineering. The study involved surveying minority engineering programs, evaluating the information and preparing a collection of program descriptions from engineering schools gathered in the survey. This information, plus valuable statistical data, is presented in the above publication and includes descriptive information from fifty-nine (59) institutions as follows:

University of Alabama/University
University of Bridgeport
University of California/Berkeley
California State Polytechnic University/Pomona
California State University/Los Angeles
California State University/Long Beach
California State University/Northridge
Carnegie-Mellon University
Case Western Reserve University
Clarkson College of Technology
Columbia University
University of Connecticut
Cornell University
University of Delaware
Drexel University
University of Florida
General Motors Institute
Georgia Institute of Technology
Harvey Mudd College
Howard University
University of Illinois/Chicago Circle
University of Illinois/Urbana-Champaign
Illinois Institute of Technology
University of Kansas
Lamar University
University of Maryland/Eastern Shore
University of Maryland/Frostburg State College
University of Massachusetts
University of Michigan/Ann Arbor
Michigan State University
Michigan Technological University

University of Minnesota
University of Missouri/Rolla
New Jersey Institute of Technology
University of New Mexico
New Mexico State University
North Carolina A & T State University
North Carolina State University
Northeastern University
Oakland University
Ohio State University
Oklahoma State University
University of the Pacific
University of Pennsylvania
University of Pittsburgh
Pratt Institute
Purdue University
Rensselaer Polytechnic Institute
San Jose State University
Southern University
Stevens Institute of Technology
University of Tennessee
University of Texas/Austin
University of Texas/El Paso
Tulane University
Tuskegee Institute
Wayne State University
West Virginia Institute of Technology
University of Wisconsin/Madison

Copies of this publication are available from the Committee on Minorities in Engineering at the address listed above.

Other valuable resources on minorities in engineering:

Minorities in Engineering: A Blueprint for Action, Report by the Planning Commission for Expanding Minority Opportunities in Engineering, Louis Padulo, Chairman. Available from American Society for Engineering Education, Publications Sales, Suite 400, One Dupont Circle, N.W., Washington, D.C. 20036.

Proceedings of Symposium on Increasing Minority Participation in Engineering, Commission on Education, National Academy of Engineering, May 6-8, 1973. National Academy of Engineering, 2101 Constitution Avenue, N.W., Washington, D.C. 20418.

Proceedings of a Workshop for Program Directors in Engineering Education of Minorities, Conducted by the Committee on Minorities in Engineering, National Research Council, June 12-14, 1975. National Academy of Sciences, 2101 Constitution Avenue, N.W., Washington, D.C. 20418.

Directory of Organizations in Engineering Programs for Minorities, Committee on Minorities in Engineering, Assembly of Engineering, National Research Council, 2101 Constitution Avenue, N.W., Washington, D.C. 20418.

Faculty Development to Meet Minority Group Needs: Recruitment, Retention, and Curriculum Change 1971-1974, prepared by Marie Branch, Western Interstate Commission for High Education (WICHE), P.O. Drawer P, Boulder, Colorado 80302, July 1975.

This publication is a report of the project on Faculty Development to Meet Minority Group Needs initiated in 1971 by WICHE at the request of the Western Council on Higher Education for Nursing (WCHEN). The project addressed the problem of the underrepresentation of American Indians, Blacks and Chicanos in Nursing education in the West through a series of workshops and consultation with faculty in collegiate nursing programs in the 13 western states. This project, funded by the W. K. Kellogg Foundation, was designed to impact on nursing education in the West by assisting schools of nursing faculty in the formation and expansion of programs for the recruitment and retention of minority students and to revise curricula to include diverse cultural perspectives. This publication describes the project and its impact as well as activities undertaken by the 44 participating institutions (includes enrollment statistics, name and address of a contact person).
See also Inventory entry #70.
This publication is available through Publications Unit, Western Interstate Commission for Higher Education, P. O. Drawer P, Boulder, Colorado 803C2.
The cost is $5.00.

National Health Manpower Programs with Minority Group Services (Partial Listing)

American Association of Colleges
Of Pharmacy
8121 Georgia Avenue - Suite 800
Silver Spring, MD 20910
301/587-1012
Douglas P. Johnson, R. Ph.
Director of Student Affairs

Recruitment program and admission clearinghouse to increase representation of minority groups in the pharmacy profession.

American Foundation for Negro Affairs
136 S. 17 Street, Room 404
Philadelphia, PA 19103
215/LO3-2654
Mary Anne Bartley

Project to assist minority students to undertake a four-year program to prepare for entry into health professions schools.

American Hospital Association
840 North Lake Shore Drive
Chicago, IL 60611
312/645-9400
Barbara I. Bloom, Director
Division of Career Information

Minority recruitment brochures and Health Manpower Bibliography with special section on minority information.

American Optometric Association
7000 Chippewa Street
St. Louis, MO 63119
314/832-5770
Aaron Donerson
Minority Recruitment Project Director

Program to increase minority participation in the optometric professions.

American Speech and Hearing Association
9030 Old Georgetown Road
Washington, D.C. 20014
301/530-3400
Sylvia Jones
Director of Recruitment

Program to develop informational resources for minority students on careers in speech pathology and audiology. Projects related to other areas of minority concerns and communications directed by Office of Urban and Ethnic Affairs.

American Student Dental Association
211 East Chicago Avenue - Suite 2110
Chicago, IL 60611
312/944-6730; Ext. 451
Torry M. Sansone
Executive Director

Includes among objectives increased communication between dental students and minority groups.

ASPIRA of America, Inc.
245 Fifth Avenue
New York, NY 10016
212/683-6054
Samuel Negron, Director
Training and Programs

Leadership development for Puerto Rican students. College placement, retention, counseling (health careers counseling done by affiliates.)

Association of American Indian Physicians
721 N.E. 14 Street
Oklahoma City, OK 73190
405/235-5862
Don Jennings, Project Director

Recruitment of American Indians into the health sciences.

Association of American Medical Colleges
One Dupont Circle, N.W.
Washington, D.C. 20036
202/466-5158
Dario Prieto, Director
Office of Minority Affairs
Programs to increase minority representation in the health professions.

Association of Schools of Allied Health Professions
One Dupont Circle, N.W.
Washington, D.C. 20036
202/293-3422
Lorraine Gordon
Project Director
1) to identify barriers to entry of minority students into allied health educational programs, 2) to develop goals and 3) to implement solutions.

Association of University Programs in Hospital Administration
One Dupont Circle , N.W. Suite 420
Washington, D.C. 20036
Barry Cooper, Director
Office of Student Affairs
Co-sponsors with National Association of Health Services Executives, a national work-study recruitment program for minority students (summer program); administers scholarship and loan fund for minority students. (Applications should be directed to program director of graduate school in which the student is enrolled.)

Health Manpower Development Corporation
1990 M Street, N.W.
Washington, D.C. 20036
202/872-1355
Thurmond Evans, M.D.
Executive Director
HMDP is committed to increasing and improving health services for the inadequately served by: 1) motivating high school and college students to pursue professional careers in the field of health; 2) recruiting low-income and minority citizens as paraprofessionals; 3) encouraging already-trained professionals to serve in community health programs; and 4) coordinating regional efforts in health manpower development.
(Proposed guidelines available for above activity areas.)

National Chicano Health Organization
1709 West 8th Street - Suite 517
Los Angeles, CA 90017
213/483-7167
Federico Lopez
Executive Director
National recruitment program to increase supply of Chicano health professionals. Quarterly conferences of Chicano recuiters.

Project 75 of the National Medical Association, Inc.
1020 S. Wabash - Suite 700
Chicago, Il 60605
312/427-5000
A. L. Thomas, M.D.
Program to discover, develop and and sustain interest in medical careers among Black, Chicano, Indian, and Puerto Rican students, primarily at college level. A national office and five regional offices.

National Medical Association Foundation
1150 17th Street, N.W.
Washington, D.C. 20036
202/833-3560
Joyce Berry, M.D.
Health Careers Coordinator
Project to expand health careers recruitment programs to additional cities.

National Medical Fellowship, Inc.
250 West 57th Street
New York, NY 10019
212/246-4293
Jerry Lewis, President
Provides financial assistance to first and second year minority medical students in need of financial aid.

National Optometric Association
East Chicago, IN 46312
Charles Comer, O.D.
219/398-1832
Program to assist minority students to enter and complete optometry training.

National Student Nurses Association
10 Columbus Circle
New York, NY 10019
212/586-7230
Alberta Barnes, Program Director
Breakthrough to Nursing
National recruitment program for nursing students to increase recruitment potential of nurses from minority groups.

National Urban League
477 Madison Avenue
New York, NY 10022
212/935-9250
Ruth Aikens, Associate Director for Health Project, "Development of Allied Health Curricula in Black Colleges and Universities". Offers technical assistance to Black Colleges in the southeast to develop and fund allied health professions curricula. The project was based on findings from a feasibility study and operates from the regional office in Atlanta, Georgia, with Patricia Gill as Project Director.

Nursing Education Opportunities, Inc.
55 Dimock Street
Boston, MA 02119
617/445-3508
E. Lorraine Baugh, Executive Director
National program to assist individuals and groups to develop programs which will aid students who have been disadvantaged by the educational system to enter and complete nursing education programs of their choice.

Student American Medical Association
1400 Hicks Road
Rolling Meadows, IL 60008
312/259-7450
Paul Wright, Director
Division of Health Manpower Development
1) American Indian Student Health Program to increase manpower resources for American Indian communities.
2) Appalachia Student Health Project for Recruitment and Development.

Student American Pharmaceutical Association
2215 Constitution Avenue, N.W.
Washington, D.C. 20037
202/628-4410
William F. McGhan, Executive Secretary
1) Local Health Manpower Conferences which include input from minority students in health disciplines.
2) Minority health task force to provide seed money for local minority health projects.

Student National Medical Association
2109 E Street, N.W.
Washington, D.C. 20037
202/337-4550
Yvonne Davis
Executive Administrator
Membership includes Blacks, Chicanos, Puerto Ricans, American Indians. Vehicle for student leadership development to improve distribution and supply of health manpower for minority and underprivileged health consumer.

State, Regional and Metropolitan Programs (Health Manpower) Chiefly Serving Minority Groups
(Partial Listing)

ALABAMA

Bernard Kincaid
School of Community and Allied Health Resources
University of Alabama
Birmingham, AL 35205

CALIFORNIA

Barbara de Cordova
Project Director
Health Careers Program
National Medical Association Foundation
1635 E. 103 Street
Los Angeles, CA 90002
213/ 567-7771

Project Seventy-Five
National Medical Association
Pacific Coast Regional Office
1828 South Western Avenue, Suite 24
Los Angeles, CA 90006
213/731-7371

COLORADO

Project Seventy-Five
National Medical Association
Rocky Mountain Regional Office
1899 Gaylord Street
Denver, CO 80206
303/321-4910

GEORGIA

Project Seventy-Five
National Medical Association
Southeast Regional Office
985 Hunter Street, N.W.
Atlanta, GA 30314
404/524-0601

ILLINOIS

John A. Armendariz, President
Mexican-American Council on Education
1234 West Grandville
Chicago, IL 60626

Wali M. Siddiq
Executive Director
Council for Bio-Medical Careers
412 East 47th Street
Chicago, IL 60653
312/624-4503

Sylvia Fox
Executive Director
ASPIRA, Inc. of Illinois
767 North Milwaukee Avenue
Chicago, IL 60622
312/243-1630

Project Seventy-Five
National Medical Association
Midwest Regional Office
1020 South Wasbash Avenue, Suite 700
Chicago, IL 60605
312/427-5000

KANSAS

Joyce Walker
Director
Kaw Valley Medical Society
Health Careers Program
1135 Minnesota Avenue
Kansas City, KS 66102
913/342-7766

NEW JERSEY

Ralph Franco
Executive Director
ASPIRA, Inc. of New Jersey
20-24 Branford Place
Newark, NJ 07102
201/642-8080

NEW YORK

Alida Dailey
Project Director
City Wide Organization for Health Services, Inc.
103 East 125th Street
New York, NY 10035
212/860-3120

Mario R. Englada, Executive Director
ASPIRA of New York, Inc.
296 Fifth Avenue
New York, NY 10016
212/244-1110

OHIO

Gloria C. Lewis
Assistant Project Director
National Medical Association Foundation, Inc.
10605 Chester Avenue, Suite 409
Cleveland, OH 44106

OKLAHOMA

Don Jennings
Project Director
Association of American Indian Physicians
721 N.E. 14th Street
Oklahoma City, OK 73190
405/235-5862

PENNSYLVANIA

Epifanio De Jesus
Executive Director
ASPIRA, Inc. of Pennsylvania
526 West Girard Avenue
Philadelphia, PA 19123
215/WA3-2717

TEXAS

Director
Southwest Program Development Corporation
P.O. Box 5600
San Antonio, TX 78201
512/696-7230

WASHINGTON, D.C.

Project Seventy-Five
National Medical Association
Northeast Regional Office
2217 4th Street, N.W.
Washington, D.C. 20001
202/265-1070

PUERTO RICO

Hilda Maldonado
Executive Director
ASPIRA of Puerto Rico, Inc.
P.O. Box 11755
Santurce, PR 00910
809/724-8235

Obtained from: Daniel P. Navarro
Materials Coordinator
The National Health Council
1740 Broadway
New York, NY 10019
(212) 582-6040

Survey of Programs for Minority Students in Dental Health

The University of Alabama, Birmingham
Loma Linda University School of Dentistry, Loma Linda, California
School of Dentistry, University of California, Los Angeles, California
School of Dentistry, University of California, San Francisco
University of Southern California, Los Angeles, California
Univeristy of Florida, Gainesville, Florida
Medical College of Georgia, Augusta, Georgia
Loyola University School of Dentistry, Maywood, Illinois
College of Dentistry, The University of Iowa, Iowa City, Iowa
University of Kentucky, Lexington, Kentucky
Louisiana State University Medical Center, New Orleans, Louisiana
New Jersey Dental School, Newark, New Jersey
The University of New Mexico, Albuquerque, New Mexico
The University of North Carolina, Chapel Hill, North Carolina
The University of Oklahoma Health Sciences Center, Oklahoma City, Oklahoma
School of Dentistry, University of Oregon Health Sciences Center, Portland, Oregon
Department of Dental Hygiene and Dental Assisting, Old Dominion University, Norfolk, Virginia

See bibliography entry #117 for information on the Minority Student Program at the University of Maryland, Baltimore, School of Dentistry.

This information was gathered through the efforts of the staff of the American Association of Dental Schools; Dr. Harry Bruce, Jr., Executive Director and Miss Shirl Der, Staff Associate, AADS. The compilers of this inventory are deeply indebted to AADS for their assistance.

Science Education for Minorities at the University of Alabama School of Dentistry
Birmingham, Alabama
Sec, Coll, Prof / B / 1969-
Part, / School of Dentistry, Project Black Awareness, HEW/

The School of Dentistry is involved in a number of programs directed toward increasing the number of Black students and, ultimately, the number of Black dental health professionals. The initial efforts were in the area of recruitment of minority students into the profession since prior to the 1969 program no Black Alabama student had ever applied to the school. The following components make up the total program in the School of Dentistry.

A. Organic Chemistry Review Term--an individualized course in organic chemistry in a local college. The purpose of this course is to prepare students whose background in chemistry appears weak to cope with biochemistry, one of the most difficult areas in the freshman year. The program was successful and worthwhile but extremely time consuming and expensive since the student is repeating work that should have been accomplished at the undergraduate level. The individuals pay regular tuition for one term at the selected institution.

Project Officers: Dr. W. Ruper Bodden, Jr., Chairman, Student Recruitment and Advisory Committee and Dr. Clarence Klapper, Chairman, Admissions Committee

B. Recruitment projects. The goal of this program, aimed at the college level, is the recruitment of minority students by setting up direct contact with the sources of minority applicants. Project Black Awareness, Health Careers Organization of the University of Alabama, Birmingham assisted in recruiting efforts, and visits to each of the five predominantly Black institutions of higher learning in Alabama were initiated. This program which costs about $3,000 per year is funded by Project Black Awareness.

Dr. W. Rupert Bodden, Jr., Chairman, Student Recruitment and Advisory Committee

C. Counseling and advising minority students. The Faculty-Student Advisor System is set up to quickly identify problems which may interfere with the student's educational process or which may indicate that additional educational support is needed.

Dr. Bodden and Dr. David Greer, Director of Student Affairs

D. Orientation program. The purpose of this program is to enable minority students to adjust to their new surroundings and to review some of the academic areas with which they will be confronted.

Drs. Bodden, Greer and Klapper

E. Executive High School Internship Program. The purpose of this program aimed at inner city high school seniors, is to introduce and train selected individual students in specific areas of dental education to encourage them to seek a career in dentistry.

Dr. Bodden

F. Special Health Career Opportunity Grant (Dentistry and Optometry). The purpose of this project is to increase the number of women, minority and disadvantaged students in the entering classes of the Schools of Dentistry and Optometry; to improve the retention rate through a formalized sociological and academic reinforcement program; and to create an environment and learning experiences for minority and disadvantaged students. The program involves recruitment, retention, academic and psychological support system including tutorial assistance, student advisors and flexible curriculum options. Funded by HEW, Public Health Service; July 1, 1975-June 30, 1976; $19,440.

Wilson Wright, Jr., D.M.D., The University of Alabama in Birmingham, School of Dentistry, University Station, Birmingham, AL 35294 (205) 934-3517, 934-4553.

Tutorials for Disadvantaged Freshman Dental Students
Loma Linda University School of Dentistry, Loma Linda, California
Prof / B / Summer 1972
$2,000 per student / Loma Linda School of Dentistry / 2

The program described was last operated during summer 1972. Currently the school offers individual special tutorials, not organized as a program. This program rendered special tutorial and laboratory services to disadvantaged freshman dental students for purposes of bringing their academic and laboratory performance up to a level that would qualify them to begin the second year of the dentistry curriculum with those benefits normally available to the regular class. Principal activity of this tutorial program was during the summer session following the freshman year, while the remainder of that class was on summer recess. Some tutorial services were provided as a preventive measure in the course of studies during the freshman year.

Elmer E. Kelln, D.D.S., Associate Dean, School of Dentistry, Loma Linda University, Loma Linda, CA 92354 (714) 825-2856

Summer Trainee Enrichment Program (S.T.E.P.)
School of Dentistry, UCLA, Los Angeles, California
Coll (15-16) / All / Summers 1970-73
/ UCLA School of Dentistry, Vice Chancellor of Academic Affairs Office / 60

The goals of this program were to enrich an educationally disadvantaged student's science background to enable the student to cope with dental school, to aid the dental school in the selection of students who had high potential for success in dentistry; and to increase the number of minority students enrolled at UCLA School of Dentistry. The conclusions of staff were that the program was successful. To this date only one student out of 60 who enrolled in the program (S.T.E.P.) has been academically unsuccessful. The number of minority students enrolled at UCLA since 1970 is 106; between 1964 and 1970 there had been only 5 minority students enrolled at UCLA School of Dentistry. The project was terminated for several reasons unique to this institution: the applicant pool for minority students had increased; the academic quality of the pool had increased which made an enrichment program less necessary.

Drs. J. Freed, J. Houston, K. Trabert and E. Hanson, School of Dentistry, University of California, The Center for the Health Sciences, Los Angeles, CA 90024

Recruitment, Admission and Retention Program of Minority and/or Disadvantaged Students in the Field of Dental Health
School of Dentistry, University of California, San Francisco, California
Elem, Sec, Coll, Prof / All / 1968-
/ NIH, HEW, UCSF /

The program at UCSF is designed to encourage minority/disadvantaged students to consider careers in dental health and to facilitate recruitment, admission and retention of minority/disadvantaged students who will be graduated as dentists and dental hygienists. The ultimate goal of the program is to increase the number of qualified professional personnel to care for the dental health needs of minority/disadvantaged communities and to develop leadership capabilities in students who represent these communities. The program components include:

A. Recruitment. Upper division dental and dental hygiene students are used as counselors and recruiters to introduce prospective junior college and college applicants to dentistry and related health professions throughout the state, specifically rural areas and inner city schools. The students play a major role in the introduction of proper dental care and participate in health career classes at the elementary and high school levels.

B. Admissions. Students are provided with counseling, informed of available financial assistance, and assisted where needed via pre-admission assistance programs. They are evaluated for admission under broader criteria. These students are assisted in preparing for the American Dental Association Aptitude Test and The University of California Performance Tests.

C. Summer Orientation. This program is open to all newly admitted first year students but is designed for minority/disadvantaged students. The summer orientation program consists of classes in the biological sciences, introduction to the dental technique courses which are led by student preceptors and faculty members. The students attend the five-week program from August to September and are tested as if in actual classes. When deficiencies are determined, they are assigned permanent tutors in those courses.

D. Tutorial Program. This is designed to assist all students, especially in the first two years, to adjust to the stringent demands of dental education and to improve the quality of their educational experience. Student tutors are utilized in this program.

E. Consultants, Lecturers and Workshops. Speakers and lecturers familiar with problems associated with practice in low socioeconomic areas are included in the program to acquaint students (minority and non-minority) with problems associated with this type of practice site.

The Minority/Disadvantaged Student Program is generally agreed to be successful. It has significantly impacted on the student body and the community. Those enrolled in the project have served as models to both the minority and non-minority students and faculty.

Robert F. Brigante, D.D.S., Assistant Dean and Project Director, Recruitment, Admission and Retention Program of Minority and/or Disadvantaged Students in the Field of Dental Health, School of Dentistry, University of California, San Francisco, 1466 - 4th Avenue, #108, San Francisco, CA 94143.

University of Southern California School of Dentistry Minorities Program
University of Southern California, Los Angeles, California
Coll (15-16) / B, C, N / 1970-present
/ Special Project Grant /

This program was developed to achieve greater representation in the Dental School and ultimately in the dental profession of students with minority backgrounds. The participants in this program are Chicano, Black, or Native American students who have achieved at least two years of college work in the sciences.

Dr. John C. Vinton, Director of Student Life, University of Southern California School of Dentistry, 925 West 34th Street, Los Angeles, CA 90007

Summer Program, J. Hillis Miller Health Center, University of Florida (Dentistry and other Health Sciences)
University of Florida, Gainesville, Florida
Prof / All / ongoing
/ Office of Minority Relations /

The Health Center conducts a summer program to enhance the progress of minority students admitted into the various programs (health related) prior to their entry in September each year.

Mr. Willie J. Sanders, Director, Office of Minority Relations, Box 731, J. Hillis Miller Health Center, University of Florida, Gainesville, FL 32610

Minority Program, School of Dentistry
Medical College of Georgia, Augusta, Georgia
Prof / B / 1970-
/ School of Dentistry / 6-8 per year

This program involves active recruitment of Black students into the School of Dentistry. Following recruitment students are evaluated, remediated and matriculated in the Dental School. They are provided the regular classroom and clinical experiences as well as individualized programs when needed. Success rate of these students is comparable with that of non-minority students.

Carl O. Davis, D.D.S., Ph.D., Director of Evaluation, School of Dentistry, Medical College of Georgia, Augusta, GA 30902

Loyola University School of Dentistry, Maywood, Illinois

Loyola has special help programs to make minority students better prepared for dental school and give them a better chance in competition with their classmates. Loyola has recruited minority students for a considerable time and, when enrolled in the Dental School, given them whatever assistance necessary for their success.

John V. Madonio, D.D.S., Ph.D., Assistant Dean, Loyola University School of Dentistry, 2160 South First Avenue, Maywood, IL 60153 (312) 531-3000

Educational Opportunities Program
College of Dentistry, The University of Iowa, Iowa City, Iowa
Prof / B, C. N / 1970-1975
$35,000 per year / USPHS /

The goal of the program is to identify, recruit, admit and retain individuals of minority heritage who come from educationally and economically disadvantaged backgrounds. A special committee (whose membership is made up of students, faculty and administrators, and whose composition is more than 50% minority) has been set up to carefully examine and select minority applicants. There is a strong tutorial program. To date, none of the students selected have been lost due to academic deficiencies.

Dr. Leslie H. Higa, College of Dentistry, The University of Iowa,
Iowa City, IA 52242

Dental Preparatory Summer Program
University of Kentucky, Lexington, Kentucky

This program is specifically designed for minority students. It involves an eight-week summer program for students who have been accepted to the Dental School.

Mr. John S. Wiggs, Director, Special Student Programs, College of Dentistry,
Albert B. Chandler Medical Center, University of Kentucky, Lexington, KY 40506
(606) 233-5280 or 233-6168

School of Dentistry
Louisiana State University Medical Center, New Orleans, Louisiana

The School of Dentistry (along with the entire Medical Center) is represented and involved in the AFNA Plan, New Access Routes to Medical Careers, New Orleans Chapter (see Inventory entry number 6). This program is directed towards placing minority students of high school age who are interested in health careers with preceptors within the Medical Center. In regard to other efforts, LSU School of Dentistry has attempted to recruit (throughout all minority institutions) students into dental and dental auxiliary programs by visits to minority institutions and through programs conducted within LSU itself.

John W. Coughlin, D.D.S., M.S.D., Assistant Dean for Student Affairs, School
of Dentistry, Louisiana State University Medical Center, 1100 Florida Avenue,
New Orleans, LA 70119

Students for Dentistry Program (SDP)
New Jersey Dental School, Newark, New Jersey
Coll, Prof / All / ongoing
/ Special Project Grant PHS /

The Students for Dentistry Program (SDP) is aimed at increasing the number of minority dental practitioners. This goal is accomplished through recruitment, orientation, elevation of the level of academic functioning, and admission and retention of students for the duration of dental school. The key aspect of the SDP is its summer academic reinforcement program. This summer program includes a general group of college undergraduates interested in a career in dentistry, and an advanced group of students already accepted into the New Jersey Dental School (NJDS). The general curriculum includes review coursework in introductory basic sciences, exposure to coursework in organic chemistry, histology, and anatomy and physiology, preclinical dental sciences, and learning skills. The courses in the advanced curriculum are aimed at successful completion of the coursework of dental school and include biochemistry, dental anatomy, histology, preclinical dental sciences, and learning skills. The advanced summer program is conducted for five weeks from May to June, while the general group runs for eight weeks from June to August. There is no charge to the student for participation in either of these groups. Financial aid is granted to participants on the basis of documented need on application to the Financial Aid Officer and with approval of the Loan Scholarship Committee of the New Jersey Dental School.

Mr. Allison G. Dildy, Director, SDP, New Jersey Dental School, College of Medicine and Dentistry of New Jersey, 201 Cornelison Avenue, Jersey City, NJ 07304

Dental Assisting and Dental Hygiene Programs
The University of New Mexico, Albuquerque, New Mexico

These programs started an active recruitment program with the University of New Mexico chapter of the National Chicano Health Organization in 1972. In addition, an NCHO representative served as an observer of Selection Committee procedures and a dentist chosen by NCHO became a voting member of that committee. There has always been encouragement of applications from Chicano and Native American students (prominent minority groups of this area). No particular curriculum changes have been made for minorities but tutoring is arranged when needed through the all-University tutorial program.

Monica Novitski, Director, Dental Programs, The University of New Mexico, Albuquerque, NM 87131

School of Dentistry, The University of North Carolina at Chapel Hill,
Chapel Hill, North Carolina

Special effort is made in recruiting minority students through the help of the North Carolina Health Manpower Council and individuals at minority institutions in North Carolina.

Dean Raymond P. White, Jr., School of Dentistry, The University of North Carolina at Chapel Hill, Chapel Hill, NC 27514

College of Dentistry, The University of Oklahoma Health Sciences Center,
Oklahoma City, Oklahoma

Although no formal programs have been undertaken, special effort is made to recruit and retain minority students.

William E. Brown, D.D.S., Dean, College of Dentistry, The University of Oklahoma Health Sciences Center, P.O. Box 26901, 1110 Northeast 12th Street, Oklahoma City, OK 73190

Recruitment of Disadvantaged Students into Dentistry
School of Dentistry, University of Oregon Health Sciences Center, Portland, Oregon
Elem, Sec, Coll, Prof / All / 1972-
/ State of Oregon, State Board of Higher Education, HEW /

The purposes of this program are to increase the number of disadvantaged students in the dental health field and to develop interest and assist in success in this field among younger students. The program involves three steps in accomplishing primary goals: (1) recruitment of disadvantaged students, (2) academic enrichment and retention and (3) career orientation and development. Recruitment. This part of the program is aimed at high school and college undergrad student populations and uses faculty and students (of both sexes, several of whom are minorities) as recruiters. Techniques employed in recruiting include: arousal of individual interest through talks, slides, films, personal visits to the School of Dentistry; continuous liaison between this program and Directors of other minority programs in the Northwest; providing the means as well as the desire to attend the Junior Dentist Institute during the summer; constant communication with students who have professed or shown interest in pre-dental health areas; and development and use of posters and pamphlets which encourage disadvantaged students to qualify for a career in the dental health areas. Academic Enrichment and Retention. This component of the program involves tutorial assistance while the student is in pre-dental or pre-dental hygiene curricular studies to assist these students in qualifying for possible acceptance into the dental school; and retention of students admitted into the School of Dentistry through counseling, tutorial assistance and self-teaching programs. Career Orientation and Development are directed primarily to children in elementary school. Specifically, this is an awareness program and utilizes "Your Dental Health" type presentations to promote long range goals of developing an interest in dental health fields among younger students. Most efforts are concentrated in the public schools in cooperation with local and state dental and dental hygiene societies.

The overall program efforts have been successful in encouraging disadvantaged students to qualify academically. The retention rate has been very high, with only one student academic casualty. In entering the fourth year of the program, the enrollment of disadvantaged students had increased from one to a total of 16; 14 in dentistry and two in dental hygiene.

C. K. Claycomb, Ph.D., Deputy Director, Minority Recruitment, Professor and Chairman, Department of Biochemistry, School of Dentistry, University of Oregon Health Sciences Center, Portland, Oregon 97201

Departments of Dental Hygiene and Dental Assisting,
Old Dominion University, Norfolk, Virginia

Although no formal programs have been undertaken, the departments are making every effort to recruit minority students for these programs. Minority students are assisted in obtaining financial aid; individual tutorial help has been given to minority students in pre-dental hygiene, whenever needed, to better prepare them for entrance into the Dental Hygiene program.

Louise A. West, R.D.H., M.S., Assistant Professor, Department of Dental Hygiene, Old Dominion University, Norfolk, VA 23508 (804) 489-6414

V. THE INVENTORY OF PROGRAMS

001 *A Project to Increase* Minority Optometric Manpower (Optometry)
National Program of National Optometric Association
Sec, Coll, Grad / All / 1972-
$280,000 / Natl Optometric Assoc

This program is national is scope, involving contact with most colleges with large minority enrollments as well as visitations to many high schools. The retention program was conducted at the 12 optometry schools in the nation. There were 59 minority students in 1972-73, 86 in 73-74, and 109 in 1974-75. Through the recruitment program many students, teachers, counselors and parents have been made aware of the field of optometry and the need for regular professional vision care. The program has not been able to get as many students into optometry school immediately because of deficiencies of many minority students in the required math and science courses. Lack of financial aid for minority optometry students is a problem; most aid available for the health fields goes toward medicine, denistry, and nursing. This is a long range project and immediate results are not expected.
Dr. Charles Comer, Project Director, NOA Minority Recruitment, 3736 Main Street, Box F, East Chicago, IN (219) 398-1077

002 *Academic Foundations Department,* Camden College of Arts and Sciences, Rutgers University (General Science)
311 North Fifth Street, Camden, New Jersey
Coll (13) / B, N, P / 1974-1975
$3,000 / NJ Dept of Higher Education / 66

This summer program was intended to improve skills (especially of those pursuing nursing careers), to bridge gaps between high school and college, and to motivate students to pursue science fields. The participants were college freshmen (many in the Educational Opportunity Fund Program) who either had not had college preparatory science courses in high school or who wanted to improve their skills in order to pursue physical science courses in college. Structured class setting and small group study sessions were used to accomplish those goals. The number of students who are currently involved (voluntarily) in the continuing effort more than doubled.
Ruth F. Dixon, Room 401, Armitage Hall, Rutgers University, 311 North Fifth Street, Camden, NJ 08102

003 *Accelerated Program in Science* and Technology (Biology, Chemistry, Mathematics, Computer Science)
Southern Illinois University at Edwardsville, Illinois
Coll / B / 1975-
$50,000 / State of Illinois / 20

The main goal of the Accelerated Program in Science and Technology is to identify minority students who are highly motivated and academically capable of pursuing careers in science and provide them with the necessary

background and careers through a credited preparatory program to insure their success in a university degree program. In addition, APST is attempting to increase science awareness in low income, disadvantaged students, heighten motivation to enter science and technology and increase the number of minority graduates in scientific disciplines. Students were recruited from area high schools based on their academic background and interest in science and technology and received training via innovative courses in math and science. The mathematics courses employed a quasi-modular approach utilizing lecture and some in-class tutorial assistance. Other courses in physical and life sciences were designed to include frequent quizzes and examinations. There are at present twenty participants.
Dr. Emil F. Jason, Southern Illinois University, Box 21, Edwardsville, IL 62026, (618) 692-2333.

004 *ACS Project Catalyst* (Chemistry)
Local projects ongoing on various campuses throughout the United States
Sec/All / 1969-
$378,000 (student support) / American Chemical Society / over 750

Project Catalyst is the only ongoing program of Project SEED, the American Chemical Society Program for the disadvantaged. Project Catalyst brings disadvantaged high school students into contact with chemistry and chemistry research in academe via a summer experience in a research laboratory on an individual basis with a faculty member. Each student works for ten weeks and receives a stipend of $500 from ACS Project SEED funds. The college or university contributes its resources, and the staff contributes its time. The staff members devote an average of 100 hours of training and instructional time per participant. The participants must be involved in meaningful research activities. Many Catalyst participants become skilled in techniques for synthesis; others concentrate on learning to operate instruments and interpreting results. Several participants have made sufficient contributions to be named as co-authors for technical papers. Participants must show an interest in science, have potential to succeed and, the family must meet low income criteria. Ninety five percent of Catalyst participants continue their education beyond high shcool and 80 percent go into four year colleges. The establishment of an on-going Project Catalyst program has enabled several colleges to obtain funds for more Catalyst participants from other sources. These include private sources (California State College-Los Angeles); ACS local sections (Rochester and California); college and local industry (Southern University); college, local industry, local section, and government (University of Missouri-Kansas City). The extent of this support is unknown since the support is often not made known to the Project SEED office.
Naomi Lev, Staff Associate, American Chemical Society.

005 *Adventures in Nature* (Natural History, Physical Sciences)
Cranbrook Institute of Science, Bloomfield Hills, Michigan
Elem (6) / B / Summer 1974
$120 / Detroit Free Press Charities / 10

The purpose of this program was to introduce minority youngsters from Detroit to various disciplines in the natural and physical sciences by

involving them in field work and experiments. Working in small groups of ten, youngsters learned by doing and were guided in their exploraiton by an instructor experienced in the self-discovery method of teaching. There was enthusiastic response from the students.
Mrs. Linn G. McGlade, Curator of Education, Cranbrook Institute of Science, 500 Lone Pine Rd., Bloomfield Hills, MI 48013 (313) 645-3230.

006 The *AFNA* Plan: New Access Routes to Professional Careers (Pre-Medicine, Medicine)
Suite 805, 136 South 17th Street, Philadelphia, PA
Sec, Coll, Prof. / B / 1970-Present
/ Private Foundations, HEW / 668

Students are recruited from public, parochial and private high schools throughout the metropolitan areas. The goal of this program is to increase the number of minorities in all professions proportionate to their percentage in the population. The AFNA Plan is a four-phased educational program designed to recruit, retain and support Black and other minority students through a corridor of educational and preceptorial activities directly leading to professional schools. Each phase encompasses an extensive and intensive series of didactic and practicum experiences, formal courses, counseling and guidance and a professional preceptorship.
Samuel L. Evans, President and National Chairman, AFNA, Suite 805, 136 South 17th Street, Philadelphia, PA 19103.

007 *Aid to Black Colleges* (Engineering)
Colleges: Howard University, North Carolina A & T, Prairie View A & M, Southern Univ., Tennessee State, Tuskegee Institute. Sponsored by: Bell Labs
Coll / B / 1972-
/ Bell Labs /

The goals of this program are to assist six Black colleges offering engineering degrees in order to increase the supply of Black engineers available for recruitment by Bell labs and others. Aid to Black colleges includes scholarship support; summer employment at Bell Labs for selected students/faculty; BTL seminar speakers; curriculum guidance; equipment donations and a Visiting Professor Program. Bell Labs provides partial support for school faculty members seeking their doctoral degree (usually with the understanding that the faculty members will return to their schools.)

008 *Alfred P. Sloan* Foundation Program for Minority Students (Engineering)
The University of Alabama
Sec, Coll, Prof (T E) / B / 1975-
$20,000 / Alfred P. Sloan Foundation / 150

The goals of this program include acquainting high school faculty, administrators, and students with University entrance requirements and facilities, and giving Black students some indication of the career opportunities in

engineering for Black Americans. The program will be publicized in high percentage Black high schools in Alabama. Teachers and counselors will be asked to bring two interested and competent Black students to seminars at the University of Alabama. Seminars will concern career opportunities for Blacks in engineering. The program is designed to involve 50 teachers and counselors and 100 students per year.
Professor William K. Rey, Department of Aerospace Engineering, The University of Alabama, University, AL 35486.

009 *Allied Health Careers Program* (Biology, Chemistry, Health Sciences, Math)
Xavier University, New Orleans, Louisiana
B / 1972-75
$318,000 / HEW / 200(1974-75)

Participants are recruited from rural and inner-city poverty areas of the southeastern part of the country. The purpose of this program is to increase the participation of minority and disadvantaged persons in the allied health fields. Specifically the program seeks to identify, recruit, encourage, and prepare students to pursue allied health careers. The program involves identifying potential participants; providing them with information on admissions requirements and financial aid; facilitating and monitoring applications; using minority professionals as role models; counseling students; and offering academic support by means of tutorials, special programs, individualized instruction and special summer sessions.
Dr. Alvin J. Richard, Program Director, Xavier University, New Orleans, LA 70125.

010 *Allied Health Exploratory* Program (Health)
Mt. San Antonio College, Walnut, California
Coll (13-14) / B, C, N / 1974-74
/Mt. San Antonio College / 15

This program was designed to offer health sciences vocational training to educationally disadvantaged students in a community college. The goals of the program were retention of the student in school and his/her success in job placement. A skills development lab course in which students are given work specifically tailored to their needs, a hospital work experience (12 hour/week), and intensive work in Mathematics and English were features of the program. Subject matter from the science courses was used in the skills development course. Pre- and post-testing was done to measure the progress of the students. The rate of retention in school for the participants compares very favorably with the school as a whole. In addition, all students who completed both semesters had grade point averages of "C" or better.
Mrs. Margaret Foster, Chairman, Allied Health Department, Mt. San Antonio College 1100 N. Grand, Walnut, CA 91789 (714) 598-2811.

011 *Aluminum Company of America* Foundation Scholarships (Engineering)
The University of Alabama

Coll / B / 1972-
$5000 / Aluminum Company of America / 7

The goals of this effort are to provide financial assistance to a select group of very outstanding students and to motivate other Black students who know and respect them to consider engineering as a career. The program is publicized at the local level. High school teachers and counselors are contacted for assistance in identifying and screening capable Black students. Outstanding students are recruited for the program. Enrollment of Blacks in engineering has increased 500% at the University of Alabama. As enrollment is the only available measure, the program is considered highly successful.
Dr. W. Edward Lear, Dean, College of Engineering, Box 1968, University, AL 35486 (205) 348-6400

012 *American Society of Biological* Chemists Lecturer-Recruitment Program (Biological Sciences)
Coll (15, 16) / All / 1971-
$35,000 / ASBC, Josiah Macy Foundation / 300

The purpose of the program is to recruit young minority students to go on to graduate school and to improve the level of the teaching of math and the sciences in the minority colleges. Two to three lecturers visit a minority college for a period of one day to one week and give one or two seminars; they also meet informally with the students and faculty in the hope of arousing interest in the field of basic sciences.
Dr. Harold Amos, Department of Microbiology, Harvard Medical School, 25 Shattuck Street, Boston, MA 02115 (617) 734-3300, X685

013 *Area Health Education* Center Training Program (Pharmacy)
South Texas (Laredo, McAllen and Harlingen)
Coll / C / 1974-
$74,000 / HEW / 12

The goals of this program are to increase the number of health care professionals in rural areas as well as to allow students to return to their home areas to finish their degree requirements. Senior students selected to participate in the program spend an entire semester within selected facilities in South Texas learning first-hand pharmacy practice in these areas. These students work with pharmacy preceptors as well as other health professionals in providing health services to these areas. All but one student participant remained in the South Texas area to practice pharmacy after that individual received the B.S. Degree in Pharmacy.
Dr. William Schottstaedt
The University of Texas Medical Branch, Galveston, TX

014 *ASCE - Notre Dame* - Pre Engineering Summer Program for Minority Students (Civil Engineering)
Sec (11, 12) / All / Summer 1976

/ Part $10,000 / ASCE, Notre Dame / 50

Students having completed the 11th grade and possessing above average capabilities in math and science were encouraged to apply. The goals of this program are to introduce the students to civil engineering, the studies necessary to practice the profession and give them experience with university life. The three week program "Introduction to Civil Engineering for Minority Students" covers topics such as concepts of engineering, use of computers in problem solving and the various disciplines within civil engineering. Counseling is available to the student to assist and guide in career planning. Follow-up includes liaison between student participants and geographical ASCE sections for interaction while still in high school and assistance in obtaining scholarship money.
Carl E. Nelson, ASCE Manager of Field Services, 354 E. 47th Street, New York, NY 10017.

015 *ASPIRA* Health Careers Program (Health Sciences)
ASPIRA of America (New Jersey, New York, Illinois, Pennsylvania, Puerto Rico)
Sec, Coll / P / 1970-
/ NIH, Various Foundations, and others /

The goal of this program is to increase the numbers of Puerto Rican health professionals. The various local programs have different educational levels as target groups and different program organization. ASPIRA of Illinois had a summer program in 1973 focused on th many opportunities in the field and a community-oriented health outlook. Health Careers Programs in Newark,Philadelphia and San Juan have focused on high school students, encouraging them to prepare for medical and health training in College. ASPIRA of New Jersey had an extensive program involving field trips, tours, meetings, and a health careers conference. Within three years after the initiation of this program there was a nine-fold increase in the number of Puerto Ricans entering medical school and other post graduate studies related to community health care needs.
Health Careers Program, ASPIRA of America, Inc. 22 East 54th Street, New York, NY 10022.

016 *ASPIRES* (*A Science* Program to Improve Reading through Environmental Sciences) (Environmental)
Talcott Mountain Science Center for Student Involvement, Avon, Connecticut
Elem (2-8) / B, P / 1972-75
$50,000 / Hartford Foundation for Public Giving / 7500

This program seeks to determine if a youngster "turned on" through science to the world around him or her can be equally stimulated to read about that world. This is basically designed as a reading program involving students from the Hartford Pulbic Schools (which have over 70% minority population), but is an innovative way of teaching both science and reading at the same time. There is direct participation of students at the science center in terms of experiments and projects which are geared toward forcing a certain amount of outside reading. A workshop was also held to train teachers to

participate in ASPIRES program. The group of teachers chosen for training had already expressed an interest in science, taught it regularly in their classes and enjoyed teaching it. They felt more competent to teach science after workshop training.
Donald P. La Salle, Director, Montevideo Rd., Avon, CT 06001 (203) 677-8571.

017 *Associate's Degree Scholarship* Program (Technical Fields)
Bell Labs
Sec, Coll (13, 14) / All / 1971-
/ Bell Labs / 130-150

The goals of this program are to motivate minority high school students toward furthering their education, to expose these students to careers in industry and to increase minority representaiton in specified technical categories. The program offers three summers of employment at Bell Labs beginning at the end of the junior year in high school, plus a scholarship for full-time study toward an associate degree at a local technical institute or college. The graduates are considered for BTL employment.

018 *Association of American Indian Physicians* Recruitment Program (Health)
AAIP--Oklahoma City, Oklahoma
Coll, Grad, Prof / N /

The goals of this program are to assist and recruit American Indian students into the health careers, the objective being to increase the number of Indian students in medicine, dentistry, optometry, podiatry, pharmacy, veterinary medicine and public health professions. AAIP will help American Indians identifying health careers opportunities and pathways leading to a career in health. Students having the desire and potential will be identified. AAIP will assist them in seeking financial assistance, providing information on special programs for Indian students and will provide financial help on a limited basis for travel to admission interviews when needed. Once the student is admitted to professional school, AAIP will assign an American Indian health professional to serve as counselor and role model.
c/o Dr. Don Jennings, The Association of American Indian Physicians
721 N.E. 14th St. , P.O. Box 26901, Oklahoma City, OK 73105

019 *Atlanta University--Georgia* Institute of Technology Dual Degree Program (Engineering)
Atlanta, Georgia
Coll / B / 1968-
$100,000 / Various / 400

This program is designed to increase minority participation in engineering. It is a dual degree program operated by the Atlanta Unviersity Center--the world's largest private cluster-college with predominantly Black student enrollment and Georgia Institute of Technology, with the third largest undergraduate engineering enrollment (predominantly white) in the world.

Scholarship money is available for recruiting among low income groups. Each undergraduate institution has available financial aid for which participants may apply. The only basic requirement for admission to the Dual Degree Program is that the student be admitted in good standing to one of the four undergraduate colleges in the Atlanta University Center. At the end of the five year course of studies, the student receives two bachelors degrees--one from one of the AU institutions and an engineering degree from Georgia Tech. This is an on-going project which reportedly is accomplishing its goals.
Calvin L. Espy, 860 Westview Drive, S.W., Atlanta, GA 30314 (404) 522-8980.

020 *Bacone College* Minority Science Improvement Program (Biology, Chemistry, Physical Science, Mathematics)
Bacone College, Muskogee, Oklahoma
Coll / N / 1974-
$131,000 / NSF / 500

The program was developed to improve science instruction at Bacone, a college serving a predominantly minority student population, mostly Native Americans. Courses were individualized and modern scientific equipment was acquired. Program officers feel that this program has been quite successful in improving science instruction.
Patrick L. Gore, Box 28, Bacone College, Muskogee, OK 64401 (918) 683-4581. X259.

021 *Basic Educational Program* (Engineering Technology)
Columbus location of Bell Labs
Coll / (13,14) / All / 1970-
/ Bell Laboratories /

Minority employees of Bell Labs are eligible for the program. This program was designed to increase the utilization of minority employees in technical fields. The program involves attendance at a local technical institute as part of the work assignment. Bell Labs pays all normal expenses associated with the employee's education.

022 *Basic Science Core* Instruction Development (Biological and Physical Sciences)
Laredo Junior College, Laredo, Texas
Coll / C / 1973-
$24,000 / Laredo Junior Coll / 50

The goal of this program is to design a basic science program flexible enough to remove deficiencies in students' pre-college education so that they can pursue their goal in the sciences or allied health fields. About 50 students are field testing some of the unit. These students are regis-

tered in a developmental science course offered at Laredo Junior College (a predominantly Chicano institution) as part of a federally-funded Coordinated Bilingual Studies Program. The intent of the project is to develop the desired material into a series of individualized, and "failure-proof" units of work. Each unit would consist of a pre-test, study guide, text materials, laboratory exercises, post-test, and a list of supplementary materials. The units will be grouped into 12 one-semester hour courses. A student may enroll for a maximum of four-semester hours per semester.
E. Leon Whitley, Chariman, Physics Department, Laredo Junior College, Laredo, TX 78040. (512) 722-0521 X53.

023 *Basic Science Enrichment* Program (Basic Medical Sciences)
University of New Mexico School of Medicine, Albuquerque, New Mexico
Prof / All / 1972
$337,000 / / 85

This program was designed to prepare "high risk" minority students for entry into medical school; increase the number of minority students accepted; and increase minority medical student retention. Students are referred by participating medical schools throughout the United States. In this intensive eight-week summer course, anatomy, biochemistry, and physiology as they apply to medicine are presented in a series of lectures, laboratory experiments, and group discussions by medical school faculty and students, many of whom are minorities. The project is considered successful. Of the 85 participants in the last three years, 84 matriculated in medical schools across the country. Initial evaluation shows a retention rate of over 95%. Antonio Gomez, Office of Student Affairs, University of New Mexico School of Medicine, Albuquerque, NM 87131. (505) 277-2728.

024 *Bell Laboratories Engineering* Scholarship Program (BLESP) (Engineering)
Bell Labs, Murray Hill, New Jersey
Coll / B / 1972-
Bell Labs / 35

Candidates are considered and selected on the basis of scholastic aptitude and performance, rank in class and strength of high school curriculum, plus recommendations from teachers, counselors or principals. The goals of this program are to encourage and assist academically qualified Blacks to enter the engineering profession and to join Bell Labs' technical staff. BLESP provides students pursuing B.S. degrees in electrical or mechanical engineering with fully paid tuition and living expenses during the school year, plus summer employment in a technical area at BTL beginning with high school graduation. Each student works with a Bell Labs scientist who acts as an advisor and provides academic and career counseling through continuing year-round contact.
Mr. Milton L. Beard, BLESP Administrator, Bell Laboratories
600 Mountain Avenue, Murray Hill, NJ 07974

025 *Biological Sciences Program* (Biology, Health Sciences)
State University of New York, College at Old Westbury, New York

Coll / B, N, P / 1970-
No Extra Cost / /800

The objective of this program is to provide an undergraduate degree program in the sciences for all students regardless of prior preparation, entering ability level or previous educational level. Old Westbury maintains an open admission policy and has a predominantly minority student population, mostly Black and Puerto Rican. No student expressing an interest in the program was (is) turned away. Student preparedness in the sciences is determined by a diagnostic examination. Special courses in biology, math and chemistry skills and principles were designed to prepare students with deficient backgrounds for college level work. In addition, pure science and social science are integrated in each course at all levels of preparedness. The program has graduated only a few students thus far, and effectiveness is therefore difficult to measure. However, four students (3 minority) have gone on to professional school and one (minority) to graduate school.
Dr. Joseph Rukeyser, Convener, Biological Sciences Program, SUNY at Old Westbury, Westbury, NY 11568 (516) 876-3040.

026 *Biology Course* for Educational Opportunity Program Students' (Biology)
Office of Biology Education, University of Washington, Seattle, Washington
Coll / All / 1972-
/ UW /

This special course offered by the Office of Biology Education is available for students in the Educational Opportunity Program at the University of Washington. The course focuses on human biology and is laboratory-based, inquiry-oriented with occasional lectures and field trips. Class size is kept quite small. There are plans to expand the program in 1976-1977 for 60 additional students enrolled in a special pre-professional program to prepare minority students for health careers. Students who have an interest in a health career or in other fields where a sound foundation in basic biology is needed find the course helpful and interesting. The course is thought to be too demanding by some of the students who take it to fulfill distribution requirements.
Dr. Leonie K. Piternick, Office of Biology Education AF-60
University of Washington, Seattle, WA 98195

027 *Biology 104* (Biology)
University Library, Bowling Green State University, Bowling Green, Ohio
Coll / B, C / 1974-
$15,000 / HEW, Bowling Green / 210

This project was intended to familiarize students with general concepts in the biological sciences and to improve students' over-all understanding of the scientific process. Participants were selected from among Upward Bound and Student Development students who were required to take an introductory science course as part of their academic requirements for graduation. A PSI course in general biology featuring lectures, laboratory, modularized presentation, use of proctors, and self-pacing options for completion of the course, as well as mastery criteria for progress was used. Dr. John Newby, Director, Developmental Education Program, 204 University Library, Bowling Green State University, Bowling Green, OH 43403 (419) 372-2677.

028 A *Biomedical Research and Research* Training Program (Biology, Chemistry, Psychology)
Jackson State University, Jackson, Mississippi
Coll / B / 1972-
$508,000 / Jackson St. NIH (MBS) / 71

The goals of this program are to train the student in research procedures and the use of instruments used in health related and other types of research; to encourage students matriculating at Jackson State to enter research and subject matter areas that will lead to careers in the health related sciences; and to provide a climate for meaningful and active biomedical research for the faculty at Jackson State,an historically Black institution. College undergraduate students with an average of "B" or above were considered for the project. Students are involved in a research project under the direction of faculty. They receive individual instruction in research techniques and work on their own research projects. The program is considered successful. Students have gone on to graduate or professional schools. Fifteen papers have been presented by faculty and students at scientific meetings.
Dr. Evelyn Garrity, Department of Chemistry, Jackson State University, Jackson, MS 39217 (601) 968-2171

029 *Biomedical Research and Training* (Biomedicine)
Bethune Cookman College, Daytona Beach, Florida
Coll / B / 1974-
$270,000 / NIH / 25

The goals of this program are to develop institutional capability to perform biomedical research as well as improve the quality of traning of students. Students are involved in active research projects and are trained in research techniques, experimental design, data analysis, etc. This is viewed as a very successful program in providing the institution with opportunities to implement research projects for undergraduates as well as in terms of encouraging development of the institution's skills in proposal writing and obtaining funding.
Dr. Richard Copland, Div. of Science and Mathematics, Bethune Cookman College, Daytona Beach, FL 32015.

030 *Biomedical Research Program* (Biology, Chemistry)
Alabama State University, Montgomery, Alabama
Coll (15-16) / B / 1972-
$161,000 / NIH / 17

This project involving college juniors and seniors at historically Black Alabama State University is intended to increase the number of ethnic minority individuals in the biomedical sciences by developing and improving opportunities for biomedical research and research participation of ethnic minority faculty, students and other investigators, and by assisting in the provision of appropriate settings conducive to these opportunities. Selected minority students actively participated in meaningful biomedical research projects as junior collaborators with faculty members.
Dr. James Oliviere, Chairman, Division of Biological Sciences, Alabama State University, Montgomery, AL 36101. (205) 262-3581.

031 *Biomedical Research Program for Oak*wood College (Biomedicine)
Oakwood College, Huntsville, Alabama
Coll / B / 1972-
$150,000 / NIH / 20

This program involves four faculty members and four students per year in biochemical research projects. The threefold purpose of this program is to provide the opportunity for faculty and students at Oakwood College to participate as "companions in learning" in meaningful and significant biomedical research; to provide training in biomedical research and technology, and to strengthen the biomedical research capability of Oakwood College. By means of a Biomedical Research Seminar and a Computer Orientation Seminar, training in biomedical research technology was also provided. The completion of the two research projects is expected to result in the publication of several scientific papers. Even though the project is still continuing, there is a greater involvement of faculty and students in biomedical research than ever before in the history of the college.
Dr. E. A. Cooper, Professor of Chemistry, Oakwood College, Huntsville, AL 35806. (205) 837-1152.

032 *Biomedical Sciences Research* Improvement Program (BISRIP) (Biomedicine)
Atlanta University Center, Atlanta, Georgia
Coll, Grad / B / 1972-
$2,700,000 / NIH / 240

The goal of this program is to facilitate and increase staff research productivity in the biomedical sciences and make the science departments of the Atlanta University Center more effective in training students for research in these fields. Participants submitted research projects for funding. Those approved were eligible for participation, with final approval coming from their respective institutions. The methodology included providing those funds, equipment, ancillary resources and supporting facilities that would enable scientists in the Center to develop their research potential as well as the research potential of their students. The project is accomplishing its goals as evidenced by the increasing number of journal publications that have been produced by participants in the program. Also, as a partial result of this project, other training grants have been awarded to Center institutions.
Dr. Joe Johnson, Jr., BISRIP Program Director, Department of Chemistry, Atlanta University, GA 30314. (404) 525-5668.

033 *Biomedical Sciences Advancement* Program (Biomedicine)
Basic Medical Sciences Building, University of New Mexico, Albuquerque, New Mexico
Coll, Grad / B, C, N / 1974-
$881,000 / HEW (MBS) / 79

This program in which 36-43 college students participate is designed to increase the representation of minorities in the science professions. Students are placed in labs for fifteen hours of work a week. Graduate students are supported with monthly salary and full tuition, post-doctoral follows are provided with salary and research resources. In the view of the project officer the program would be improved if there were fewer "pre-med" students, as the design is for biomedical sciences. The involvement of minority faculty is very important in serving the "role model" function.
Dr. Sei Tokuda, Department of Microbiology, University of New Mexico, Albuquerque, NM 87131.

034 *Black Executive Exchange Program* (Computer Science)
University of Arkansas--Pine Bluff, Arkansas
Coll / All / 1976-
/ National Urban League / 100

The purposes of this program are to provide realistic and up-to-date information about what is going on in the field of computer prgoramming; to provide valuable contacts for the institution and role models for students. Individuals are brought in to lecture to students. They hold conferences with students for additional questions and for personal contact. Through outside contacts, students are given a broader knowledge of fields.
Dr. Lawrence Davis, Department of Mathematics and Physics, University of Arkansas--Pine Bluff, Ar 71601. (501) 535-6700

035 "The *Black Innovators*" Traveling Exhibition (Science, Engineering)
Museum of Science and Industry in Chicago, Chicago, Illinois
All / Part $5,000 / MSI, Chicago / 50,000+

The goal of this program is to develop pride among Blacks in the scientific and technological contributions of Black scientists, engineers, and inventors, and to inform other segments of the population of the achievements of Blacks. A traveling Bicentennial exhibition of the contributions of 23 Black American scientists, engineers, and inventors was shown in Chicago and then circulated to at least 10 other museums. The project has been well received.
Dr. Victor J. Danilov, Director, Museum of Science and Industry, 57th Street and Lake Shore Drive, Chicago, IL 60637. (312) 684-1414.

036 *Black Psychology Program* (Psychology)
University of Delaware, Newark, Delaware

Coll (16) / B / Summers 1971-
$100,000 / University of Delaware, Public Health Service / 50

The purpose of this program is to encourage undergraduate minority group students interested in psychology to continue their studies at the graduate level by providing them with an educational experience which will help to prepare them to successfully meet the requirements of graduate training. A summer research training institute is offered for a limited number of upper level minority group students from predominantly Black colleges. The institute provides trainees with a representative sample of the activities required of graduate students while simultaneously providing them with additional training in skill areas necessary to success in graduate work. A seminar in experimental methodology is supplemented by a research practicum in which trainees work closely with faculty engaged in ongoing research. The relevance of psychological study and research to the understanding and amelioration of contemporary minority group problems are explored, and a number of professional psychologists of minority group origin are invited to speak to the trainees of their own work and interests. The central focus of the program is that of providing close personal attention to trainees in order to help them achieve maximum integration of the theoretical material with the practical experience.
Dr. Ralph V. Exline, Department of Psychology, University of Delaware, Newark, DE 19711. (307) 738-2274.

037 *Book Fair* (General Science)
Hall of Science of the City of New York, Flushing, New York
Elem, Sec (6-12) / B, P / 1973-
/ Hall of Science / 18,000

The goal of the program is to give Spanish-speaking students a reading appreciation of science subjects. This was accomplished by displays of books, storytelling, distribution of book lists and doing experiments from books. The program reportedly is accomplishing its goals.
R.C. Reiley, Hall of Science, Box 1032, Flushing, NY 11352. (212) 699-9400.

038 *Brookhaven Semester Program* (BSP) (Biology, Chemistry, Physics) Mathematics)
Brookhaven National Laboratory (BNL) Upton, Long Island, New York
Coll / B / 1968-
$433,000 / NSF, AEC/ERDA, Brookhaven / 106

Students are nominated for participation by the Advisory Council of RCASM (Regional Cooperative Association in Science and Mathematics, a cooperative of 18 predominantly Black institutions). They must be a junior or senior at time of participation; have a "B" average in major (science or math); and must be enrolled in home institution while participating at BNL. Faculty participants must be on the faculty of a

member institution; have had at least two years of teaching experience; and show evidence that BNL experience would increase their competence as teacher and researcher. The specific objectives of the Brookhaven Semester Program are: to enrich the science and mathematics programs at the member institutions through added emphasis on scientific research; to generate an interest in the natural sciences and mathematics, and to stimulate students to seek a high level of achievement in these fields; to minimize the isolationalism that is characteristic of the member institutions that are somewhat out of the "mainstream" of scientific activities; and to provide for seminars in which information and current research in nuclear science and related fields will be made available and discussed. The total program includes student research participation under the direction of a BNL scientist, seminars, and for faculty members, research collaboration.
Dr. A.P. Kennedy, Grambling State University, Grambling, LA 71245.

039 *Caltech Secondary* School Science Project--The Saturday Program (Science)
California Institute of Technology, Pasadena, California
Sec (7-9) / B, C / 1969-
$25,00 per yr. / Cal Tech, various foundations and companies individual doners / 400 per yr.

The pupils are selected on the basis of their interest and motivation in science. Seventh, eighth and ninth grade pupils from L.A. County Schools participate in the program. The program has been designed to enrich and challenge students in the sciences. Pupils spend Saturday morning in small classes in various areas of science and math. The courses are set up with Caltech undergrads, graduate students and other instructors. Campus labs and facilities are used. The afternoons are spent with recreational, cultural or academic experiences or trips arranged by tutors and paid counselors. Career counseling is offered by tutors and directors.
Lee F. Brown, Director of Secondary School Relations, Californai Institue of Technology, Pasadena, California 91125.

040 *Career Growth Program* (Chemistry and Material Science)
Lawrence Livermore Laboratory, Livermore, California
Grad / All / 1975-
/ LLL /

New graduates apply to the program; selection of participants is based on career motivation, personal development and scholastic achievement. This program is particularly adapted to recent bachelor's degree graduates from smaller universities and colleges which, although offering a major in chemistry, mathematics, physics or materials science, are not endowed with advanced facilities and instrumentation of leading scientific institutions in the nation. The purpose of this program is to introduce the new graduate, especially minorities and women, in a practical, on-the-job manner to the research and development activities of a large chemistry and materials science operation, and to give them an understanding of how various scientific and technical chemistry and material science disciplines interact in an R & D environment. This two year program gives graduates an opportunity to work in different areas of the department, participating in Laboratory projects under the guidance of senior scientists and eventually working in the research area of their choice engaged in R & D activities. Final placement in a particular area is made by the department based on existing vacancies, with permanent placement where possible for participants completing the program. The Career Growth Program, R. Reidburn, Personnel Department, L-352, Lawrence Livermore Laboratory, P.O. Box 808, Livermore, CA 94550

041 *Career Opportunities in* the Health Sciences (COHS) (Health Sciences)
University of Oklahoma Health Sciences Center, Oklahoma City, Oklahoma
Sec, Coll (7-13) / B, C, N / 1959-
$37,000 / Various / 25 (1976)

Students apply directly to the program. The current program is limited to applicants from Oklahoma or one of its bordering states. Students must meet minimum scholarship requirements and send letter of recommendations from science or math teachers or counselors. The program is designed to awaken minority group students to career opportunities available to them in the health sciences, to stimulate their interest and motivation and to assist them academically toward the health career of their choice. COHS brings students to the Health Sciences Center for a summer of research work in the labs. Each participant is assigned to a faculty member. The student assists in current research going on in the advisor's lab or performs experiments especially designed for the student. In addition to lab research, participants are involved in seminars, tours, field trips, and a course on research methods. Academic counseling, special tutorials and computerized instructional aids are also available to students. The majority of students completing the program have pursued (or are intending to pursue) college training and many in the health fields or in the sciences. Dr. Joseph J. Ferretti, Assoc. Prof., Department of Microbiology and Immunology, The University of Oklahoma Health Sciences Center, Oklahoma City, OK 73190 (405) 271-2133

042 *Catalyst in Indianapolis* (Chemistry)
Indianapolis, Indiana
Sec (11) / All / 1972-
/ Various / 10 (1975)

Fliers and application forms are sent to all public, private and parochial high schools in the Indianapolis area. The program is part of the ACS Catalyst Program designed to help increase the flow of disadvantaged youth into chemical professions. Students are given the opportunity for summer research experience while receiving a stipend to help offset the loss of summer-time earnings. The awarding of stipends has been separated from the research opportunities. Thus, stipends can accompany other research programs that make no provision for financial assistance to students, and ACS research

opportunities can be extended to interested students who are not economically disadvantaged. The program is continuing to develop. It has been found that continuing the research project during the year can help consolidate the summer's experience, as well as be of financial benefit, and there is an attempt being made to work out a means of providing this opportunity through the Federal Manpower Program. There is also concern that most of the students who enter the program appear to be already motivated toward higher education and professional careers. Of course, any assistance provided to them is important, but the Catalyst program is also aimed at students with ability who are not yet motivated. Reaching those unmotiviated students is seen as a challenge that awaits.
Edwin Harper, Ph. D., Indiana Section, ACS.

043 *Catalyst Program* (Chemistry)
School of Chemical Sciences, University Of Illinois, Urbana, Illinois
Sec (11) / B / Summers 1973-1975
$2500 / American Chemical Society / 6

The purpose of this program (in keeping with the overall goals of the ACS program) is to provide a research experience for disadvantaged students. The students worked closely with a research assistant on research projects. The personal relationship is hopefully a very important factor in raising the student's goals and expanding his or her horizons. With limited follow-up on the participants,effectiveness of program is therefore difficult to determine.
Dr. Galen D. Stucky, 263 Noyes Lab, University of Illinois, Urbana, IL 61801
(217) 333-0889

044 *Cedar Programs* (Science)
The Science Museum of Minnesota, St. Paul, Minnesota
Elem / N /
/ Self-sustaining /

The purpose of this program is to teach Indian and non-Indian children about the Dakota, Ojibwa, Hopi and Navajo cultures, and to point out the relationship between environment and culture. The program, taught by a Native American teacher, provides hands-on experience for students. An outreach program makes these experiences available to children all over the state, particularly on Indian reservations.
Ms. Karla McGray, Administrative Assistant, Education Department,
The Science Museum of Minnesota, St. Paul, MN 55101

045 *Chemistry* (Doctor of Arts Degree Program) (Chemistry)
Atlanta University, Atlanta, Georgia
Grad / B / 1975-
$341,000 (1975-78 / NSF, Dreyfus Foundation, Carnegie Corporation / 2

This alternative to traditional Ph.D. programs based at historically Black Atlanta University is designed to train teachers for small liberal arts colleges and community colleges. The program includes a broad chemistry curriculum, an education-teaching component, a three-phase internship

program, and various options for completion of the dissertation requirement.
Dr. Thomas W. Cole, Jr., Chairman, Chemistry Department, Atlanta University, Atlanta GA 30314 (404) 525-6204

046 *Chemistry of Nutrition*/Grade 5 (Nutrition)
Las Cruces Public Schools, Las Cruces, New Mexico
Elem (5) / C / 1973-
/ Las Cruces Public Schools / 30 (Staff)

A committee of individuals (including teachers, high school students, science and curriculum coordinators, graduate students, specialists in nutrition and media, bilingual translator, school nurse and a parent volunteer coordinator) was formed to develop a curriculum guide for chemistry/nutrition which incorporates contributions and examples from the predominant minority group of the area, Chicanos. The goals of the program were to develop teacher resource guides and implement the nutrition curriculum into the schools of Las Cruces. This would be a vehicle for teaching the chemistry of the body(as relates to nutrients), scientific methods in the study of nutrition, nutritional values of foods, and careers in nutrition. Through the use of various instructional aids, the nutrition unit can be taught to the students. Parental involvement, community resources and curricular incorporation of the Chicano culture are strong components of this program. "...Other minority groups could follow this guide, substituting the cultural foods, menus, resources of the community to include those of the minority group being considered. ...Workshops in Foods and Nutrition with parents becomes a strong support for the introduction and contribution of cultural and nutritional foods that could be incorporated in the teaching guide. Parents could become resource persons to demonstrate ways in which cultural foods are prepared and served and also show their nutritional value and how these foods make up balanced meals."
J. Paul Taylor, Director, K-12 Science Design, 301 West Amador, Las Cruces, NM 88001 (505) 526-3341

047 *Child-Centered Summer* Environmental and Vocational School (Title I) (Environmental)
Laramie County School District Number One, Cheyenne, Wyoming
Elem (4-6) / B, C / July 1972
$10,000 / Title I / 40

This environmental education program was designed to produce understanding and appreciation of living things and the environment while building communication skills and increased awareness of vocational opportunities. Teacher in-services activities as well as provisions for parental involvement were major components of this program. A number of field activities, projects, guided tours, etc. were involved.
Linda Fleming, Project Manager, 4612 E. 6th St., Cheyenne, WY 82001
(307) 634-1067

048 *Children's Science and Latin* American Book Fairs (Science, Technology, History)

Museum of Science and Industry in Chicago, Chicago, Illinois
Elem, Sec / All / Fall 1973-
$9000 / MSI, Chicago / 60,000

The intent of this program is to acquaint youngsters with the joys of reading about science and technology. In the case of the Latin Book Fair, it also tries to develop pride in the accomplishments of Spanish-speaking people. The Museum presents two book fairs each fall. The feedback from teachers indicates the book fairs are helpful in furthering reading and interest in science, as well as in developing pride among the Spanish-speaking children.
Dr. Victor J. Danilov, Director, Museum of Science and Industry, 57th Street and Lake Shore Drive, Chicago, IL 60637 (312) 684-1414

049 Committee to Increase Minority Professionals in Engineering, Architecture and Technology, (*CIMPEAT*) (Architecture, Engineering, Technology)
100 Peachtree Street, Suite 1712, Atlanta, Georgia
Sec, Coll, Prof / All / 1973-
$50,000 (1975) / Various / 24,000

The goal of this program is to increase the number of minority professionals in engineering, architecture and technology. The methodology includes (a) creating and maintaining a workable relationship between institutions of higher education and concerned engineering and architectural firms to provide employment for students and other services to students and participating colleges; and (b) informing high school students and the community of professions and opportunities available. The project is continuing to accomplish the desired goals as many years are needed, however there has been an increase inthe number of minority students at the freshmen level in engineering college for the 1975 school year.
Ms. Jackie Means, Executive Director, P.O. Box 1097 or 100 Peachtree St., Suite 1712, Atlanta, GA 30303 (404) 688-7500

050 *Civil, Electrical, and* Mechanical Engineering and Computer Service (Engineering, Computer Science)
Federal City College, Washington, D.C.
Coll / All /
$260,000 / Federal City College / 250

The goal of this program is to educate minority students as professional engineers in the fields of civil, electrical, and mechanical engineering and computer science or for advanced study. It is a four year program meeting the requirements for Professional Engineers' development however, it is also especially designed to meet the needs of minority groups having high school deficiencies. The student is allowed to enter at various levels in accordance with his or her former high school preparation, and the deficiencies are improved through remedial courses which are not credited toward the major requirements. There have been thirty-five graduates during the past four years and all the graduates either have had professional jobs or have entered graduate school for the advanced degree.
Dr. Tony T.S. Yang, 929 E. Street N.W., Washington, D.C. 20004 (202) 727-2741

051 *Cleveland Health* Education Museum (Health Education)
8911 Euclid Avenue, Cleveland, Ohio
All / All / 1968-
/ Various / 50,000

The goal of this project is to improve the level of health information in order to prevent illness, reduce hospital costs, increase career awareness among minorities and initiate inter-institutional cooperation among health provider agencies. Several different programs have been undertaken, all directed toward the goal of improved health education and career awareness. These include ongoing programs for in-service training of teachers for a continuing implementation of the center's goals, as well as projects aimed directly at students such as summer workshops. These workshops include such activities as field trips, leadership skills development and meeting with practicing professionals.
Lowell F. Bernard, Director, Cleveland Health Education Museum, 8911 Euclid Avenue, Cleveland, OH 44106

052 *College of Engineering Program* for Native Americans (Engineering)
University of Utah, Salt Lake City, Utah
Coll / N / 1972-
$90,000 / University of Utah / 24

The goal of this project is to encourage Native Americans to enter the engineering profession. The program offers individual tutoring and counseling and special orientation courses for Native Americans to its six participants per year. Program officers report that they were not entirely successful due to the poor academic preparation and problems of motivation of the students.
Dr. W. L. Hufford, College of Engineering, University of Utah, Salt Lake City, UT (801) 581-6880

053 *College of Natural Science Affirm*ative Action (Natural Sciences)
Michigan State University, East Lansing,Michigan
Coll / B, C / 1974-
/ MSU / 8 (Faculty)

The goals of this program are to counsel minority students and women already on campus and interested in science; to increase retention in the sciences of students who enter the University with preference for science; and to develop materials for the minority students in junior and senior high schools which explain the opportunities in science and develop in these students an interest in science. There is coordination of the office with the already existent counseling centers on campus and with visits to the public schools. (The latter program is in its initial phase of development.)
Charles Thornton, A-232 Wells Hall, Michigan State University, East Lansing, MI 48824 (517) 355-9264

054 *College Science Impr*ovement Program (Biology, Chemistry, Physics)
Winston-Salem State University, Winston-Salem, North Carolina
Coll / B / 1973-
$205,000 / NSF / 550

The purpose of this program at historically Black Winston-Salem was to improve the quality of instruction in natural science by developing an audio-tutorial biology laboratory, securing supplies and equipment and recruiting additional faculty. A biology laboratory was renovated and equipped with carrels. Each carrel has a cassette tape player and earphones. The student works at his/her own speed and receives individualized instruction. Chemistry and physics laboratories were equipped with modern equipment and supplies so that students can carry out experiments individually and in small groups.
J. B. Shepperson, Natural Science Department, Winston-Salem State University, Winston-Salem, NC 27102 (919) 761-2098

055 *Commission on Geography* and Afro-America, Association of American Geographers: A System for Developing Teacher Improvement Programs in Geography at Predominantly Black Colleges (Geography)
Grad (MA, PhD) / B / 1969-1975
$985,000 / US Office of Education / 589

The goals of this program were to improve the quality of geography taught at predominantly Black colleges by: (1) increasing Black participation and training in geography; (2) alerting geographers to the largely untapped research area dealing with problems facing Black Americans; and (3) making geographic curriculum more relevant to the Black experience. To achieve these goals: 1) a fellowship program was instituted for M.A. and Ph.D. training; 2) a leadership conference was organized for faculty teaching at predominantly Black schools; 3) geographic material was distributed; 4) research on Black Americans is encouraged and published; 5) an information clearinghouse was established; and 6) summer institutes for secondary teachers were organized to disseminate geographic curriculum data at that level. The project did accomplish its goals by increasing the number of professionally trained geographers at predominantly Black colleges. This is also reflected in the increased numbers of geography programs organized by these individuals.
Dr. Donald R. Deskins, Jr., Department of Geography, University of Michigan, Ann Arbor, MI 48109 (313) 764-3401

056 *Committee on Institutional* Cooperation Midwest Program for Minorities in Engineering (CIC + MPME) (Engineering)
14 Midwestern engineering institutions
Sec / All / 1975-
Part $750,000 Marching Funds / Alfred P. Sloan Foundation and institutions

The fourteen participating institutions are Illinois Institute of Technology, Indiana University--Purdue University at Indianapolis, Michigan State University, Northwestern University, Ohio State University, Purdue

University, University of Illinois at Urbana-Champaign, University of Michigan, University of Minnesota, University of Notre Dame, University of Wisconsin at Madison, University of Wisconsin at Milwaukee.
The goals of this program are to prepare and to motivate minority secondary school pupils towards careers in engineering. The consortium is the coordinating body for the diversity of activities undertaken by the participating institutions in furthering the goals of the program.
William Thomas, Executive Director, CIC + MPME, Administrative Services Building, Purdue University, West Lafayette, IN 47907 (317) 749-6302 and 749-6419

057 *Cooperative Education Program* (Engineering, Physics, Mathematics)
Sandia Laboratories, Albuquerque, New Mexico
Coll / C, N / 1969-1976
$3,000 (1975-1976) / Sandia / 41

This program has served 41 college student participants (minorities & women) since 1970. The goal was to provide financial assistance through salaries paid during work phases of the CO-OP Program and also to provide an opportunity to integrate classroom knowledge with the work environment. Normally, students would work six months, then attend the university as full time students, on a continuing, alternating basis. Project officer reports that the program has been successful. This program has been replaced by the Work/Study Program for the Disadvantaged.
Ms. Mary T. Quigley, Orgn. 4231, Sandia Laboratories, Albuquerque, NM 87115 (505) 264-7361

058 *Cooperative General Science* Program (Physical and Biological Science)
Clark College, Atlanta, Georgia
Coll / B . 1966-
$1,500,000 / HEW (USOE) / 15,000

This program was specifically designed for undergraduate, non-science majors enrolled in Clark, Morehouse, Morris Brown and Spelman Colleges, all predominantly Black institutions. The purpose of the program is to develop an appreciation of science and scientific literacy among liberal arts majors. This special program consists of a one semester course in physical science and a one semester course in biological science. The program is designed to offer a wide area of exposure to the physical and biological sciences via formal lectures, laboratory sessions, and a few field trips and special sessions. Distinguished lecturers whose accomplishments and competence provide an academic setting for interesting and informative dialogue with students are brought into the classroom. Classroom demonstrations of interesting phenomena are used to rivet the students' attention, provoke curiousity and stimulate the imagination. Questions and discussions follow that explicate new aspects of science, promote understanding, and provide a basis for achieving an orientation to a wide area of the scientific enterprise. Summer institutes for college teachers have also been held as part of the Cooperative General Science Program.
Dr. O.P. Puri, Director CGSP, Clark College, Atlanta, GA 30314 (404) 523-3538

059 *Cooperative Research Fellowship* Program (Physics, Chemistry, Math, Engineering and Computer Science)
Bell Labs, Murray Hill, New Jersey
Grad / All / 1972-
/ Bell Labs / 18

Participants are identified and chosen for the program on the basis of scholarship and strong research potential. The purpose of this program is to facilitate development of minority M.S. and Ph.D. degree holders in physics, chemistry, mathematics, engineering and computer science research. The program annually provides support for six candidates with strong research potential. Included are tuition and stipend plus summer employment with a BTL mentor throughout graduate study to the doctoral degree. Fellows receive training that assists them in planning the nature and scope of their studies and dissertations.

060 *Cornell Program* (Engineering)
Bell Labs
Coll / All / 1972-
/ Bell Labs / 40

The goals of this program are to motivate minority and female engineering students by providing them with an orientation to the types of engineering performed in industry. Program participants, students from Cornell University, spend a week during their January intersession visiting Bell Labs and whenever possible, doing work projects with BTL hosts and mentors.

061 *Council of Partners* to Increase Black Graduates in Engineering, Technology and Architecture at Oklahoma State University (Architecture, Engineering, Technology)
Oklahoma State University, Stillwater, Oklahoma
Coll / B / 1973-
$82,000 / College of Engineering, Private Firms / 92

The purpose of this program is to increase the number of Black graduates in Engineering, Technology and Architecture from OSU proportionately equal to the number of Blacks in the total population of Oklahoma (about 7%). Participants were selected by recruitment and counseling of Black high school seniors throughout the state by a Black counselor, and evaluation of academic records of applicants. The methods used include increasing the enrollment of Black students, providing preparatory or remedial course work to qualifiable students, individual and group counseling and guidance, accomodating university services to special needs of students, tutorial services and summer employment in jobs related to academic goals.
Douglas M. Ames, Assistant to the Dean, College of Engineering, Oklahoma State University, Stillwater, OK 74074 (405) 372-6211 X6233

062 *Danforth Summer Program* for Undergraduates (Engineering, Psychology)
Princeton University, Princeton, New Jersey
Coll / B / Summers 1974-
$53,000 / Danforth Foundation / 26

Participants are recruited from predominantly Black colleges through fliers, visits, and calls to departmental heads at these institutions. The goals of this program are to expose students to the type of research done in graduate school in the sciences and to encourage and prepare them to undertake graduate work themselves, with the general purpose of increasing the number of minority Ph.D.'s in the sciences. Students come to Princeton in the summer following their junior year of college and spend six weeks working with faculty and graduate students in labs and seminars. They are involved in the formulation and execution of research projects in the labs. The participants rated the program very highly and expressed a desire to further their education through graduate school. The program gave them training that was not available in their home institutions and exposed them to the type of work expected of graduate students, thus hopefully improving their chances of success in graduate school.
Deborah G. Turner, The Graduate School, Princeton University, Princeton, NJ 08540 (609) 452-5551

063 *Dartmouth Medical* School Special Program for Native Americans (Medicine) Dartmouth Medical School, Hanover, New Hampshire
Prof / N / 1969-
$30-70,000 (annual) / HEW / 13

The goal of this program is to strengthen the background of American Indian candidates for the M.D. degree. One year's work is done in two in order to bring them up to the level of their colleagues. The structured program (1 year in 2) has been changed to provide more individualized programs in response to student needs to avoid labelling. Special assistance was given in the form of tutoring, counseling, and stipends. Some of the 13 American Indian participants have graduated with M.D.'s.
Francis Hall, Admissions, Dartmouth Medical School, Hanover, NH 03766 (603) 646-2638

064 *Dartmouth/Talladega* Cooperative Arrangment (Computer Science) Dartmouth College (Hanover, New Hampshire)/ Talladega College (Talladega, Alabama)
Coll / B / 1964-
$165,000 (1976-77) / Office of Education Title III / 1000+

This is basically a program of student and faculty exchange or visitation designed to aid a developing institution. Introduction of a computer science program at the developing college, an historically Black institution, is one of the accomplishments of this cooperative arrangement.
Professor Raymond Hall, Department of Sociology, Dartmouth College, Hanover, NH 03755 (603) 646-2902

065 *Developing Science Career* Interests in Bilingual, Mexican-American Elementary Students (Science Education)
Texas A & I University, Kingsville, Texas

Prof (Tch Ed) / C / 1975-
/ Part $36,000 / NSF / 18

This program for 5th and 6th grade teachers was designed to provide them with a solid science foundation, develop bilingual teaching strategies, develop an awareness of science career opportunities, and to develop counseling skills in guiding the Mexican-American student into science careers. The methodology included field trips to science-oriented industries, and classwork in developing bilingual science instructional packages. The program is accomplishing its goals.
Dr. Robert A. Warren, Texas A & I University, Kingsville, TX 78363
(512) 595-3203

066 *DISCUS*, A Demonstration of an Improved Science Curriculum for Underachieving Students (General Science)
Duval County Schools, Florida
Sec (7-9) / B / 1968-1971

Regular junior high school classes in Title I areas used this program. The purpose of this program was to use a successful science experience to motivate underachieving disadvantaged youth. A pilot project was undertaken (1) to develop science materials and approaches uniquely suited to challenge the educationally disadvantaged; (2) to demonstrate the use of science as a tool in encouraging educationally disadvantaged youth to participate in learning and communicating; and (3) to assess the effectiveness of the program in terms of changes in the attitudes and behaviors of the pupils in the experimental classroom. Following this study DISCUS was implemented into the system on a larger and more comprehensive scale. In-service training was provided for a number of teachers involved in teaching the program.
Dr. N. Eldred Bingham (now retired), 1718 N. W. 10th Avenue, Gainesville, FL 32601

067 *Diversified Allied Health Program* (Marine Biology, Medical Technology, Nursing)
Edward Waters College, Jacksonville, Florida
Coll / B / 1974-
$20,000 / NSF / 20

The goal of this program at historically Black Edward Waters College is the training of students in medical technology, nursing, and marine biology. This effort is being attempted through the use of individualized curriculum offerings.
Thomas A. Wright, 1658 Kings Road, Edward Waters College, Jacksonville, FL 32209 (912) 746-3420

068 *Dual Degree Engineering* Program (Engineering)
Wilberforce University (Wilberforce, Ohio); University of Dayton (Dayton, Ohio)
Coll / B / 1973-
$74,500 / Various / 90

To increase the number of minority students graduating from engineering schools, predominantly Black Wilberforce University and the University of Dayton have established the Dual Degree Engineering Program. Students enroll at Wilberforce and take prescribed courses for three academic years. Participants then spend two years at the University of Dayton where they concentrate upon specific engineering disicplines. At the completion of all specified requirements of both institutions, Wilberforce University awards the B.S. or B.A. degree and the University of Dayton awards one of the bachelor degrees in engineering. Special recruiting efforts are made in high schools and scholarships are awarded. Reinforcement of basic math and communication skills, tutorial help, intensive academic and personal counseling, and individualized programs facilitate the student's progression through the program. The project is accomplishing desired goals. One student has graduated from the program, six are in the last two years at the University of Dayton.
Col. John H. Blakelock, Director, Dual Degree Engineering Program,
Wilberforce University, Wilberforce, OH 45384 (513) 372-9792

069 *Dual Degree Program in Engineering* (Engineering)
Virginia Union with School of Engineering at Howard University, Washington, D.C. or The College of Engineering at the University of Michigan-Ann Arbor, Michigan
Coll (15, 16) / B / 1974
/ - / 10

This program enables a student to earn two degrees in five years of study (a B.S. degree from predominantly Black Virginia Union and an engineering degree from Howard or the University of Michigan). It aims to increase the number of minority engineers and allows students to gain experience in their career during their matriculation period at the college. Industries are contacted and asked to hire Dual Degree students during the summer. Professional engineers are invited to the campus to conduct seminars.
Dr. C. S. McCreary, Coordinator, Department of Mathematics, Virginia Union University, 1500 N. Lombardy Street, Richmond. VA 23220 (804) 359-9331 X306

070 *Dynamics of Prejudice*--Implications for Nursing (Nursing)
Division of Nursing-UCLA Extension, Los Angeles, California
Coll, Grad, Prof / B, C, N / 1968-1970
/ USPHS, NIMH / 100

Participants were recruited through schools of Nursing in the West and through health care agencies serving large numbers of clients from the three target minority groups. The overall objective of this program was to improve nursing practice. Specifically the program sought to improve the curricula of Schools of Nursing related to the inclusion of content related to the three minority groups; to develop faculty awareness of the cultures of these minority groups, and to increase the numbers of faculty and students from the three minority groups. Individuals participated in two week-long, live-in workshops each year and interim projects at the nursing schools sending participants as well as those from service agencies. There was evidence of increased awareness that influences the individual nurses' ability to give safe care to patients from the three minority groups. As a result of this effort, several other projects were initiated that had national and regional impact. Two were sponsored by the Western Interstate Commission for Higher Education in Nursing--"Faculty Development to Meet Minority Group Needs in Nursing--Recruitment Retention and Curriculum Development." (completed); and "Models for Introducing Cultural Diversity in Nursing Curricula" (In Progress) (for Information Contact: Ms. Marie Branch, MN Project Director, P.O. Drawer P, Boulder CO 80302 (303) 492-7696, Other "spin-offs" were: organization of the Chicano Nurse Association, the Native American Nurses Association, Nurses for Action, the California Nurses Association Task Force on Affirmative Action, and the ANA Task Force on Affirmative Action; and preparation of a textbook "Providing Safe Nursing Care to Ethnic People of Color" Appleton Press, Marie Branch and Phyllis Paxton Editors, 1976--a cooperative effort by 15 nurses from Black, Latino, Asian and Native American cultures. Dr. Gladys D. Jacques, University of California, University Extension. Department of Continuing Education in Health Sciences, 10995 LeConte Avenue, Los Angeles, California 90024 (See annotation of WICHE publication, p. 24)

071 *East Orange* Schools Special Science Program (Science)
Vernon L. Davey Junior High School, East Orange, New Jersey
Elem (7) / B / 1973 and 1975
/ Bell Labs /

The goals of this program were to create in young Black students a more positive attitude toward science and engineering as a future career by giving them an in-depth, structured learning experience with professional technical people. The program was a three-week enrichment program presented by Bell Lab instructors (all Black professionals) from the technical area. Each instructor taught three regular class periods. Curriculum was designed in cooperation with the regular science teacher. A Bell Labs tour concluded the program.

072 *Educational Leadership* Seminars for Science Teachers (Science Education)
Baltimore City Public Schools and on site locations
Prof (Tch Ed) / B / 1967-1973
/ U.S. Office of Education / 200

This program for public school teachers of science at all levels was intended to up-grade science instruction in this system by improving the competencies of the teachers. With assistance of selected personnel from local universities and community organizations, teachers were provided with lectures to up-date science content knowledge; classroom, laboratory, and field experiences adaptable by teachers for use in their various grade levels; and opportunities for discussion and exchange of ideas with other teachers. Emphases in these programs were placed upon characteristics of inner-city children (strengths and needs), content perceived relevant by these children, interests of inner-city children,

behavioral objectives, communication skills, environmental education,and investigative procedures applicable in the inner-city.
Mr. Elra M. Palmer, Coordinator of Science, Retired, 614 Overbrook Road, Baltimore, MD 21212 (301) 377-6646

073 *Educational Opportunities Program* (Pre-Veterinary Medicine)
Kansas State University, Manhattan, Kansas
Coll / All / 1972-
$80,000 / Kansas State University / 45

The goals of this program are to increase the number of minority professionals in the field of veterinary medicine. This project seeks to (1) identify and contact minority and low-income students on campus who indicate interest in veterinary medicine, and assess background and current performance in relation to the expectation of the College of Veterinary Medicine; (2) provide advisement to those prospective students whose educational background indicates potential for success (the advisement program will assist students in exploring the various alternatives in veterinary medicine); (3) assist prospective students with their financial assistance program; and (4) provide educational supportive services for pre-veterinary students on campus which will enhance their chances of academic success. Supportive services consist of counseling (personal and financial), academic advising and referral tutoring, and provide educational enrichment experiences which will facilitate the role model concept and encourage minority involvement.
Ernest Downs,E.O.P. Coordinator, Dulce Maria Ouellette, Counselor, Fairchild Hall, Kansas State University, Manhattan, KS 66506

074 *Educational Opportunity Program* (EOP) (Architecture, Computer Science, Engineering)
Newark College of Engineering, Newark, New Jersey
Coll, Grad / B, P / 1968-

The purposes of this program are to enable educationally and economically disadvantaged students to obtain a college education by extending financial aid and by providing academic supportive services designed to increase their chances of succeeding in a higher education technical degree program; and to increase the number of minority students enrolled in the technical fields at New Jersey Institute of Technology, thereby, increasing the number of minorities entering the fields of engineering, architecture, and other technical areas. Students are required to attend an eight week summer preparatory program prior to the beginning of the regular academic year. The summer program has been designed to give the students exposure to the freshmen courses (math, chemistry, physics, and English) which they will be required to take during the regular academic year. Furthermore, the program provides financial aid, tutoring, counseling, and cultural and educational activities during the regular academic year. This program has made it possible for some "disadvantaged" students, who otherwise would not have had the opporutnity, to acquire a degree in engineering and in other related technical areas. Since 1968, the program has graduated approximately sixty-eight (68) students.
Mr. Lonnie Morrison, Director, EOP, Newark College of Engineering, 323 High Street, Newark, NJ 07102 (201) 645-5128

075 *Eight Week* Workshop--Summer 1969 (Science/Natural History)
Science Museum of Minnesota, St. Paul, Minnesota
Elem, Sec / B, C / Summer 1969
/ Minn.State Arts Council /

Spanish-speaking children from the Guadalupe area project and Black children were involved in collecting materials and inservice laboratory sessions at the Nature Center and in the Museum.
Ms. Karla McGray, Administrative Asssistant, Education Department, Science Museum of Minnesota, St. Paul, MN 55101

076 *Elementary Institute of Science* (General Science)
608 51st Street, San Diego, California
Elem, Sec / B, C, N / 1964-
$300,000 / Various / 3,000

The Institute is a "little league: of science providing recreation and familiarity with science careers. Its goal is to be a socialization process preparing youth for a scientific-industrial-technical society. Another goals is to be a developer of social movers--community leaders who show their peers the advantages of scientific involvement. It aims at providing group activity therapy to youths who are alienated from their homes, schools, and/or community. The transaction between lay therapist adults who are scientists and young people in a mutually exploring setting also has the goal of preventive mental health. Finally, the program has a goal of improved intergroup relations by providing a contact process between successful adults and youths living in poverty or on the edge of poverty in a closely supervised setting. The Institute is a laboratory science club. It provides sophisticated equipment to children along with instruction in the equipment's proper use. With the equipment and instruction, youths proceed to explore their environment, answering questions that are relevant to them. Both the youth and the scientist explore together, building mutual bonds of friendship and trust. The scientist becomes a role model and the child becomes the interested listener necessary for continued adult growth. Labs are set aside for the different disciplines in various parts of what was originally an abandoned two-bedroom split level house. For instance, the kitchen is the chemistry lab, a bedroom is set aside for electronics, and the breakfast nook houses the biology lab. The groups run from four to eight youths for each scientist in each lab. The equipment includes oscilloscopes, monocular and binocular microscopes (medical grade), 35 mm single lens cameras, and colorimeter.
The program is meeting its goals. Approximately one-third of the particpants are in college or have graduated from college. Only two members are known to have been convicted of a crime following participation in the program. Every referring agency or individual has been able to see growth in youths participating in the program. All evaluations and the single scholarly study show clearcut evidence of success. Almost 3,000 young people have participated, averaging 275 per year.
Mrs. Elizabeth Thompson, Executive Director, Elementary Institute of Science, 608 51st Street, San Diego, CA 92114 (714) 263-2302

077 *Engineering - A Piece of* the Action (Engineering)
Del Mod System
Sec (7-9) / B, P / 1974-
$4000 / DuPont Company / 50

This program targeted for minority students, was designed to develop a series of lessons for use in junior high schools to motivate students to look into engineering or related technology as career choices. The course was designed to run two weeks. Activities, investigative in approach, were to be completed in a class period. Each activity introduces students to problems faced by engineers.
Robert E. Lewis, 2611 Silverside Road, Wilimington, DL 19803 (302) 475-8025

078 *Engineering and Secondary* School Education (Engineering)
Princeton University, Princeton Regional Schools, New Jersey
Elem, Sec / B / 1969-1973
$43,000 / Princeton University, Trinity Church, Title III / 200

Students participants were located by sending letters to Princeton area public and private institutions. The goals of the program were to increase motivation in the sciences, and to interest students in careers in engineering. Emphasis was placed on participating in tasks rather than preparing for them. This was done by establishing an atmosphere conducive for the development of close relationships between students and adults who are experienced in engineering disciplines.
Chester V. Harker and John Abel, Engineering School, Princeton University, Princeton, NJ 98540

079 *Engineering Career Interest* Workshop (Engineering)
Ohio State University, Columbus, Ohio
Sec (7-12) / All / 1976-
$22,725 / CIC + MPME, OSU / 600

The target groups for this program are administrators, junior and senior high school faculty, counselors, minority parents and students. The project's main thrust is to develop community awareness of the career opportunities available in engineering and the educational background necessary to prepare for them. This is accomplished through a series of seminar and workshops tailored to specific interests and needs of the local group. Aids such as films and career information literature were developed and are distributed to the target group, then to a broader based population. Workshops are organized and conducted by the College of Engineering and Office of Minority Affairs with persons from O.S.U.'s regional compuses, other areas colleges, minority engineering alumni and local industry leaders invited to perform important roles in these workshops. Five to six workshops have been conducted in several Ohio cities with populations ranging from 30,000 to 150,000.
Dr. Marion L. Smith

080 *Engineering Minority Program* (Engineering)
School of Engineering, California State University, Los Angeles, California

Coll / B, C / 1973-
/ Part $12,000 / California State University, Industry Grants / 60

The program was intended to increase the percentage of minorities in engineering programs. A limited number of openings are provided for those students who do not meet the eligibility requirements for regular admission to the School of Engineering but who show potential as engineering students. Determination as to the eligibility of these students is made by identification by a high school counselor or identification by a Professional Engineering Group Counselor interviewing in the high schools. A combination of recruiting, advising, tutoring, financial aid and special courses are designed to accomplish the program goal. Group activities are being promoted via an Engineering Minority Newsletter. The project is still in process. The program is presently growing at a moderate rate.
Professor Martin S. Roden, School of Engineering, California State University, Los Angeles, CA 90032 (213) 224-3550

081 *Engineering Opportunities Program* (Engineering)
University of Illinois at Urbana-Champaign, Urbana, Illinois
Coll / B, P / 1969-
$75,000 / College of Engineering / 220

The goal of this program is to increase the number of minority graduates from engineering curricula. Forty-five students per year are selected based on their high school performance, American College Test scores in mathematics and estimated potentials. The program consists of concentrated mathematics and chemistry courses in which the students receive additional laboratory and problem analysis sessions. The courses have been favorably evaluated by the project officers.
Paul E. Parker, 207 Engineering Hall, Urbana, IL 61801 (217) 333-2280

082 *Engineering Orientation for Minority* Students (Engineering)
Colorado School of Mines, Golden, Colorado
Sec (11) / B, C / Summer 1975
$8000 / Conoco, Amoco, Arco / 18

The purpose of this six week on-campus summer program was to stimulate the interest of minority students in engineering and the opportunities of careers in engineering, and to strengthen their background in pre-engineering, including encouraging them to take regular math and science courses the last year of high school. The students stayed in the dorm on campus, studied math, computer science, geology and surveying, with lectures and discussions about engineering. Field trips, tours, and contact with minority scientists were also features in this program.
Dale Foreman, Colorado School of Mines, Golden, CO 80401 (303) 279-0300

083 *Engineering Special Programs* (Engineering)
Cleveland State University, Cleveland, Ohio
Coll / B / 1975-
College of Engineering / 20

The goals of this program are to develop a sense of community in the college, to help students who do not learn easily from written material, to convey general perspectives as well as facts and techniques, to show the relevance of course material to practical affairs, to share values and ideals of the field, to inspire, and to decrease the attrition rate of those entering engineering with a weak background (as evidenced by SAT/ACT scores and high school grades). The approach includes individual, by appointment counseling; drop-in services, where student-tutors proficient in engineering science, calculus, chemistry and engineering physics have posted office hours; and weekly, hour-long review sessions in the courses listed. Although open to all needing special problems, the majority of participating students are Black.
Denise Tromski, Coordinator, Engineering Special Programs, SH 200, Cleveland State University, 1983 E. 24th Street, Cleveland, OH 44115
(216) 687-2584

084 *Engineering Student Development* Project(Engineering)
College of Engineering, Michigan State University, East Lansing, Michigan
Coll / B, N / 1974-
$328,000 / Alfred P. Sloan Foundation / 50

The goal of this program is to reduce the prerequisite time needed for ethnic minority student to begin the engineering program. Self-paced instruction is available to the students in prerequisite technical courses.
George VanDusen, Assistant Dean, College of Engineering, Michigan State University, East Lansing, MI 48824

085 *Engineering Technology Career Program* for Disadvantaged Minority Students (Engineering and Engineering Technology)
College of Engineering Technology, Temple University, Philadelphia, Pennsylvania
Sec (10-12) / B, P / 1975-
$55,000 / NSF / 30

This experimental career program is designed to interest disadvantaged students in the field of engineering technology. Minority students who have completed the ninth grade in high school are eligible to participate in the various phases of activities covering a period of three years. Phase I involves a career workshop program during the summer between grades 9 and 10. The workshop program which runs for 4 days a week for 6 weeks includes activities such as films and discussions on careers; industry visits and tours; classes in application of mathematics and basic concepts in English, hands-on laboratory experiments and demonstrations; guidance sessions on how to study and take tests; getting along in college; and lectures by engineers. Phase II involves continual personal and financial counseling and tutorials when necessary throughout regular high school attendance in grades 10, 11, and 12. Phase III involves work experience related to engineering applications in local industry during summers between 10th/11th and 11th/12th grades.
Dr. Theodore P. Vassallo, Temple University, Philadelphia, PA 19122
(215) 787-7803

086 *Environmental Seminar* (Environmental)
Central YMCA Community College, Chicago, Illinois
Coll (13, 14) / All / 1970-
$72,000 / Central YMCA Comm Coll / 250

The stated goal of this program is to equip students scientifically to fulfill their societal and political obligations with an ecological perspective. The program involves reading, lectures, field trips,films, discussion, lab sessions, and projects. Half of the students became aware of environmental problems of which they were not aware before they entered the course: care in body intake, care for the environment, overpopulation, nuclear and solid wastes, pesticides, ecological equilibrium, and the repercussions of air and water pollution on organic life. (Central YMCA Community College has a large minority student population, mostly Black and Hispanic.)
Ms. Helen Kossoff, Central YMCA Community College, 211 West Wacker Drive, Chicago, IL 60606 (312) 222-8334

087 *Equal Opportunity in Engineering* (Engineering)
The University of Texas at Austin, Austin, Texas
Coll / B, C, N / 1971-Present
$40,000 / Private Industry / 400

The purpose of this program is to recruit and retain minorities in engineering. The program involves financial assistance, tutoring, advising, personal counseling, etc. Enrollments are steadily growing (105 freshmen 1975-1976) and the retention rate is high (approximately 70%).
Dr. P.S. Schmidt, Department of Mechanical Engineering, The University of Texas at Austin, Austin, TX 78712 (512) 471-7571

088 *ESEA TITLE I* Programs (Science, Technology)
Museum of Science and Industry in Chicago, Chicago, Illinois
Elem / All / 1965-1970
/ ESEA Title I, Education Opportunity Act / 200,000

The stated goal of this program is to broaden the experiences of elementary school children from the inner-city. The program involved pre-planning of tours of specific scientific exhibits at the Museum under the supervision of classroom teachers. Teacher evaluation surveys seem to indicate that the program was effective, beneficial to the students, stimulating other activities.
Dr. Victor J. Danilov, Director, Museum of Science and Industry, 57th Street and Lake Shore Drive, Chicago, IL 60637, (312) 684-1414

089 "*Expansion of Xavier* University, MBS Training Activities" (Biomedicine)
Xavier University, New Orleans, Lousiana
Coll / B / 1972-
$480,000 / NIH / 139

The goal of this program is to increase minority participation in biomedical research; i.e. to increase the number of minority science Ph.D.'s. Faculty participants were selected on the basis of scientific peer review

of their submitted research proposals. Students were selected by faculty participants from among Xavier science majors exhibiting interest and competence. The participants include 3 staff, 8 faculty, 16 student trainees/academic year and summer. Science faculty of this minority institution were provided with salary, equipment, supplies, etc. to enable them to train about 2 minority research students on an individual basis. Students worked 10 hours/week during the academic year (or 40 hours/week summers) and received stipends of $800/academic year or summer. They received unstructured training and research experience and, through seminars and symposia, experience in presenting their work.
Dr. Joyce H. Corrington, Director of Research in Science, Xavier University, New Orleans, LA 70125 (504) 486-7411

090 A *Fifth Grade* Environmental Education Project (Environmental)
East Cleveland Pulbic Schools, East Cleveland, Ohio
Elem, Sec (5 and 12) / B / June 1973
$2800 / East Cleveland Public Schools / 184

This program was undertaken with classes from three schools in the system, all with more than 95% Black enrollment. The goals of this project were: (1) to encourage teachers to involve their students in community focused investigations; (2) to broaden the students' appreciation and understanding of their community; and (3) to introduce students to people and events in the broader metropolitan community. The steps involved in implementation of the program were: (1) determine student concerns and develop with them a means of investigating concerns; (2) contact local resource persons, involve high school students as groups leaders and conduct the investigation; and (3) evaluate the investigation with the students. The teachers were responsive and recognized the merit of the program, but were not able to implement it in the curriculum without constant support of project officers. Each of the four investigations was a success; the students encouraged teachers the year following their participation (when they were in the sixth grade) to conduct investigations.
Joseph H. Chadbourne, President, Institute for Environmental Education, 8911 Euclid Avenue, Cleveland, OH 44106 (216) 791-1775

091 *First Americans* - Tommorrow's Engineers (FATE) (Engineering)
University of Oklahoma, Norman, Oklahoma
Sec (10, 11) / N / Summer 1974-

Participants for this summer program were obtained by mass mailing of the FATE III brochure to state high school counselors and math and science teachers. Program representatives talked to students at various career day activities. The goal of this program is to interest capable Indian students in the engineering profession through student involvement in activities designed to provide a view of an engineer's educational preparation, the university experience, and the various jobs performed by engineers. The program involves in-class lectures, lab and field work that allows students to operate experimental apparatus in the collection and analysis of data. The students live in college dormitories with uni-

versity students, eat in the dorm cafeteria and attend a number of university-sponsored social events. The students hear presentations by practicing Indian engineers. The engineers explain their professional duties, why they chose engineering, and their academic preparation. A survey taken of the 21 seniors (current) that participated in FATE II (Summer 1975) shows that six plan on an engineering major. Two intend to study medicine, and one intends to major in forestry. Almost half plan on a major in a technical area. The remainder of the seniors did not respond to the survey or are still undecided.
George Thomas, University of Oklahoma, College of Engineering, 202 W. Boyd, Room 107, Norman, OK 73069 (405) 325-3192

092 *Fisk/Vanderbilt* Dual Degree Program (Science, Engineering)
Administration Building, Fisk University, Nashville, Tennessee
Coll / B / 1973-
$80,000 / Corporations / 24

The goal of this program is to increase significantly the number of minority engineers in this country. The coordination of curricula between historically Black Fisk University and Vanderbilt University enables a student to obtain both a degree in science and engineering simultaneously in a five year period. Cross-registration, shuttle service and NUCC Consortium provisions all enhance the program. The program is now in its third major year of operation. As it is a five-year program, its first graduates will be in the class of 1977-78. Twenty-four students at this time are participating.
Dr. George N. Neely, Director, Development Office, Fisk University, Nashville, TN 37203 (615) 329-2480

093 *Gateway to Engineering*, Science and Technology (Engineering, Mathematics)
College of Engineering and Applied Science, University of Wisconsin-Milwaukee, Wisconsin
Sec / All / 1974-
$24,000 (first year) / Various / 30

The goals of the program are to introduce high school minority students to the concepts used by engineers in order to make their high school curriculum more relevant to them. The program seeks to make engineering a viable career choice for more minority students by improving their ability with mathematics and their understanding of science and its applications. The methodology includes enrichment experiences in mathematics using the computer as well as other activities directed by tutorial assistants; other methodology used was directed at providing experience with a mini-engineering project. The project was operated as a pilot during 1974-75 and provided experiences which have formed the basis for the design of a program which is directed at encouraging minority students to consider engineering as a career choice. The target population for the pilot project was a group of students whose background was weak but who had some interest in improving their level of performance. It was found that the pilot project sustained that interest and favorably influenced the level of performance of some of the students. The program involved three groups of students,

one afternoon a week per group for four months.
Rose Daitsman, College of Engineering and Applied Science, University of Wisconsin-Milwaukee, P.O. Box 413, Milwaukee, WI 53201 (414) 963-5356

094 *General Biology for Educationally Dis*advantaged Students (Biology)
San Diego State University, San Diego, California
Coll / B, C, N / 1972-
No Extra Cost / / 4 (staff)

This special biology course for educationally disadvantaged college students had the following objectives: (1) to encourage and motivate minority students who might opt for a career in science and to place science in a context meaningful to the minority student; (2) to overcome hampering societal pressures influencing minorities from selecting science as a career; (3) to rectify the poor educational background in the sciences typical of most minority students; and (4) to demonstrate how members of one culture can make effective use of materials from another culture. More specifically the purpose of this course was to develop in the student who performed poorly or who had not take high school biology a basic background in biological concepts and an appreciation for laboratory research. A team of two teachers both members of minority groups taught the course while serving as role models to the students. Pre- and post-testing evaluative techniques were used extensively. This lecture/laboratory biology course included field trips, and emphasized maximum student-teacher interaction. Learning modules were developed and used on an individual basis to rectify weak science foundations. Bilingual tutuors who attended all sessions, and teaching and graduate assistants provided support services.
Dr. Vernon Avila, Zoology Department, San Diego State Univeristy, San Diego, CA 92182 (714) 286-5235 or 286-5387

095 *General Chemistry Conducted by PSI* (Chemistry)
Xavier University of Louisiana, New Orleans, Louisiana
Coll (13) / B / 1972-
$60,000 / NSF / 1400

The chemistry program for all college freshmen at historically Black Xavier University (approximately 140/semester) w designed to give each student the opportunity to progress at a pace which allows him or her to master the concepts of inorganic chemistry without regard to previous background and deficiencies. The program is an integrated lecture-laboratory sequence conducted in a self-paced, individualized manner.
J.W. Carmichael, Jr., Chemistry Department, Xavier University of Louisiana, New Orleans, LA 70125 (504) 486-7411 X358

096 *Geology-geophysics* (Geophysics)
Florida Agricultural and Mechanical University and Florida State University, Tallahassee, Florida
Coll / B / 1970-
/ Exxon Corp / 2

The goal of the program is to encourage Black student enrollment and career selection in geology--physics as well as to make visible geology as a career opportunity. Physics students at the predominantly Black university were provided the option of taking geology courses at Florida State University to apply to their FAMU program with the geophysics option. This program was coupled with three summer institutes for Black high school science teachers wherein an earth-science option was presented with course work preparation provided. The results in terms of Black students selecting geology have been bleak; only two physics students in four years chose the geophysics option.
Dr. Herbert Jones, Department of Physics, Box 981, Florida A & M University, Tallahassee, FL 32306 (904) 222-8030

097 *Gifted Children Program* (General Science)
Oregon Museum of Science and Industry, Portland, Oregon
Elem / B / October 1975
/ Multnomah Intermediate Education District / 40

The purpose of this program is to provide museum-based science programming for potentially gifted children.
Lois Gibbons, OMSI, 4015 S. W. Canyon Rd., Portland, OR (503) 248-5936

098 *Graduate Recruitment Program* for Minority Students (Psychology)
Department of Psychology, University of Nebraska--Lincoln, Nebraska
Grad / All / 1971-
$2000 / University of Nebraska / 18

The goal of this program is to increase the number of minority students in graduate education in psychology at UNL. This is accomplished by active recruiting and then setting up advising procedures for these students more or less tailored to individual needs. Several program participants have graduated (Ph.D.) and about a dozen are currently in the program. The only terminations were voluntary ones, and the rate is no greater than attrition with other students in the graduate program.
Frank J. Dudek, Adviser to Minority Graduate Students,
Department of Psychology, University of Nebraska, Lincoln, NE 68508

099 *Graduate Student Recruitment* (Chemistry)
University of Illinois, Urbana, Illinois
Grad / All /
/ University of Illinois, Urbana / 7

The purpose of this program is to provide graduate school educational opportunities for minority students. Thirty predominantly minority colleges were contacted by telephone and by letter writing each year. Following this inital correspondence, 20-30% of the schools were visited by a faculty member and a minority student. A seminar was usually presented at the school and an informal discussion held with the minority students interested in attending graduate school.

Galen Stucky, Department of Chemistry, 263 Noyes Laboratory, University of Illinois, Urbana, IL 61801 (217) 333-0889

100 *Headlands Indian* Health Career Program (Health Sciences)
Mackinaw City, Michigan
Coll (13) / N / Ongoing
/ McCormick Foundation, U.S. Planning Office of Health Resources Opportunity/ 20 per year

Applicants must be at least one-quarter Native American, enrolled in the first year of college, interested in a health career and have expressed and demonstrated a need and potential in a health career. Students should have recommendations from tribes, local area Indian health programs and college advisors. They must submit an essay on why they wish to participate, along with academic records. The goals of this 8-week summer program are: (1) to provide an intensive academic summer program revolving around science, mathematics, medical technology, and social sciences and communication skills; (2) to provide theoretical and practical experience for Native Americans who anticipate a career in the health professions; (3) to stimulate and motivate Native American college students toward the health career professions; and (4) to develop and improve study habits and skills in an atmosphere conducive to effective learning. The students learn about the variety of health careers; observe medical careers; observe medical and hospital procedure; take part in special field experiences; and receive instruction in the basic sciences. Tutors and counselors available to the students. There are also special discussions and lectures on Indian culture, history cross-culture, healing arts, etc. All costs for the students are paid.
American Indian Institute, 106 Constitution Avenue, University of Oklahoma, Norman, OK 73069

101 *Health Career Opportunity Program* (HCOP) (Health Sciences)
Rust College, Holly Springs, Mississippi
Coll / All / 1973-
$110,000 / NIH / 125

The participants for this program, students from historically Black Rust College are selected on the basis of need and career goals. The goal of this program is to improve the chance of health-career oriented students for entry into medical professions. Students participate in a rigid system of remediation and development; a coordinated tutorial in math, sciences, English and social studies; and field trips to health career centers, etc. There has been a marked entry of students into medicine, nursing, pharmacy, medical technology, etc.
Mr. Paul Lampley, Acting Director, HCOP, Rust College, Holly Springs, MS 38635 (601) 252-4661, X259, X268

102 *Health Career Program* (Health Sciences)
Miles College, Birmingham, Alabama
Coll / B / 1973-
$7500 / United Negro College Fund / 75

The goal of this program is to stimulate interest in the health sciences. This is accomplished through a Health Careers Club; student publication; sponsorship of annual Health Careers Fair; summer internship program; and the provision of small stipends. The program is considered a success in terms of providing career information to the students. Five of the 75 students pursued professional medical degrees. Sharing of information and mutual support appear to be major components of the program.
Marion Woodson, Premedical Advisor,Science Division, Miles College, Birmingham, AL 35208 (205) 780-6490

103 *Health Careers Awareness* (Health Sciences)
Trident Technical College, Charleston, South Carolina
Sec (11, 12) / B / Summers 1974-
$12,000 / Trident / 50

Disadvantaged high school juniors and seniors were selected based on the recommendation of teachers and counselors, academic performance and interest in the program. (The target areas have a very large Black population.) The goals of this program were to help students learn more about opportunities in the health field and to assist them in filling academic deficiencies in the areas of communication skills, basic math and biological sciences. Several approaches were used including formal classroom work (lecture/discussion supplemented by films), speaker sessions, small group discussions, rotation through several different clinical departments and individual counseling sessions.
Keith T. Samuels, Jr. Chairman, Public and Social Services Division, Trident Technical College, 7000 Rivens Avenue, North Charleston, SC 29405 (803) 555-2375 X226

104 *Health Career Opportunities Office* (Pre-medical)
Tuskegee Institute, Alabama
Coll / B / 1971-1974
$13,000 / Association of American Medical Colleges / 200

This was a program whose purpose was to help college students with the application process for medical, dental or other health professional schools and offer career counseling and tutorial assistance for those having academic difficulty. A special office was established to provide these services. The number of students who gained admittance to professional school from this historically Black institution increased during the term of the program from approximately 5 to 20 per year. Since the termination of the program the number of successful applicants has been reduced to 5-10 per year.
Dr. Raymond J. Barreras, formerly Department of Chemistry, Tuskegee Institute; now at Navajo Community College, Tsaile, AZ 86556 (602) 724-3311

105 *Health Career Opportunity Program* (Health Sciences)
Ohio State University, Columbus, Ohio
Coll (13-14) / All / 1975-
$61,000 (1975-1976) / NIH, Ohio State University / 32 (1975-1976)

Students were recruited from high schools around the state, as well as college freshmen and sophomores with undeclared majors from OSU and neighboring community and junior colleges. Selection was made on a competitive basis. The goals of this program are to increase the number of students successfully completing educational programs leading to a career in a health specialty. The overall objectives of the program are (1) to acquaint the minority group participants with health career opportunities; (2) to provide academic courses within the program which will be specifically designed to enhance the students' interest and knowledge; and (3) to provide the opportunity for students to observe health professionals at work. The methodology used to accomplish these goals include academic course work for credit (math, science, medical terminology, career life planning seminar), lectures, demonstrations, experiential workshops, tours and individual clincial experiences; students survey the health-related professions. Participants are also involved in a noncredit course designed to improve reading speed and comprehension, and to intensively review effective study techniques and notetaking.
Mr. Patrick Kennicott, Assistant Director for Development, Ohio State University Research Foundation, 1314 Kinnear Road, Columbus, OH
Ms. Dora E. Hall-Mitchum, Director of Program Development, Research and Evaluation, Office of Minority Affairs, Ohio State University, 349 Administration Building, 190 North Oval Mall, Columbus, OH 43210

106 Harvard *Health Careers Summer Program* (Health Science)
Harvard University Summer School, Cambridge, Massachusetts
Coll / All / 1972-
$350,000 / Harvard University Health Career Opportunities, Robert Wood Johnson / 800

Participating in this program are ethnic minorities from small colleges or inner-city campuses from which students seldom apply with success to professional health schools. Disadvantaged whites from Appalachian regions are also recruited. Since the inception of the program in 1972, the distribution of students among ethnic groups has been approximately 64% Blacks; 15% Chicano; 8% Puerto Rican; 8% Native American and 5% White. The goals of this program are to increase the pool of successful applicants to professional health career school (especially medicine and dentistry) from among the ethnic minority and disadvantaged undergraduate students. A typical HCSP program includes one 4-unit course in a premedical science, one intensive tutorial in mathematics or the natural sciences and a minimum of one afternoon weekly of clinical experience in a hospital or other health care facility. Special counseling is available for MCAT's and other aspects of successful candidacy for medical and dental school. Interviews are arranged for many of the major medical and dental schools in the U.S. The majority of the students are still in college or are applying to medical or dental school.
Thomas Crooks and William Wallace, Harvard University Summer School, Cambridge, MA 02138

107 *Health Professional Candidate* Program (Health Science)
San Diego High School, San Diego, California
Sec (10-12) / B, C, N / 1974-
$59,000 / HEW / 60

This program's purpose was to support and encourage minority high school students in the 10th-12th grades who express motivation and demonstrate capability for education leading to and service as health professionals and para-professionals. This support was provided primarily by three types of activity: (1) classroom and out-of-classroom instruction in basic skills necessary for health careers (e.g., laboratory and medical skills, medical filing skills, nursing skills, etc.); (2) field trips and speakers related to basic skills and careers; and (3) work in hospitals, clinics, doctor's offices. Stipends were provided.
Dr. Ann Bush, Project Director, Tetsuyo Kashima, Project Coordinator,
7610 Girard Avenue, La Jolla, CA 92037 (714) 459-2631

108 *Health Professions Special Project Grant f*or Pharmacy Students (Pharmacy)
Temple University School of Pharmacy, Philadelphia, Pennsylvania
Coll / All / 1972-1975
/ Part $200,000 / HEW / 61

The goal of this project was to increase the enrollment of minority and low income groups in the School of Pharmacy in order to encourage the practice of the profession in rural or shortage areas. Another goal was to provide guidance to urban minority and rural high school and college students motivated to pursue pharmacy careers. Counselors were recruited and provided with instruction in the art of academic and financial counseling. Minority counselors then made contact with surrounding high school and community, junior and liberal arts college teachers/advisors in order to inform them of the program of the School of Pharmacy. Numerous visits were made to secondary and college institutions in order to accomplish this objective. During the life of the grant, the one man and three women counselors recruited for the program contacted one hundred and twenty different institutions by visitation and/or correspondence, a task which involved communication with 258 teachers, administrators and/or advisors within these institutions. Countless students were counseled and 51 disadvantaged students were admitted to the School of Pharmacy under the supervision of this project. Fifty-one students were admitted to the School of Pharmacy mostly Black men and women, and the balance (15) from the Appalachian region. Future applicants who were being recruited at the time the grant expired will continue to pursue admission and receive the assistance of the admissions office. How many high school students were recruited remains to be seen in future admission statistics.
Fred. B. Gable, Assistant Dean and Registrar, Temple University School of Pharmacy, Philadelphia, PA 19140 (215) 221-4900

109 *Health Professions Special Project Grant P*rogram (Veterinary Medicine)
School of Veterinary Medicine, Tuskegee, Institute, Alabama
Sec, Coll (8-16) / All / 1972 -
/ Part $295,000 / HEW / 7

The goals of this program are: (1) to establish a recruiting program specifically designed to search for, identify and encourage qualified members of minority groups who will seek admission to, and enrollment in, schools of veterinary medicine; (2) to provide for a limited number of such students some degree of financial assistance, without which these

students would not be able to pursue such studies; and (3) to assist such students through a highly structured academic reinforcement program to reach their career objective. This project on recruitment of minority students is based on increasing the lines of communication with prospective students through correspondence, personal contact, organizations and public media. First priority has been given to developing role models for minorities in veterinary medicine. This is being done through pictoral material and person-to-person contact. In addition to the recruitment efforts, an educational reinforcement program is provided. The components are (1) experimental summer reading program, (2) tutorial program, and (3) the multi-medial self-learning program.
Dr. Walter Bowie, Dean, And Dr. Ellis Hall, School of Veterinary Medicine, Tuskegee Institute,Tuskegee Institute, AL 36088 (205) 727-8465

110 *Health Science Talent Search* Program (Health Sciences)
Virginia Union University, Richmond, Virginia
Sec (11, 12) / B / Summers 1972, 1973
$41,000 / Health Manpower Development Corporation / 30

Participants in this program were the first and second place winners in the Virginia Conference of Science and Mathematics and the Virginia Union Academy of Sciences. The goals of this program were to encourage interest in the health professions, to help these students become aware of the various types of medically-oriented institutions in our society and the invaluable health services they render and to translate this into a knowledge of job opportunities and the education needed to pursue them. Each student was placed with a hospital, medical school or science laboratory for eight weeks of summer work. Each worked a forty-hour week as a work learning experience and was paid at the rate of $1.60 per hour. Follow-up of these students reveal that many went to college and majored in a science. At least twelve have attended Virginia Union.
Walter O. Bradley, Ph.D., Virginia Union University, Richmond, VA 23220
(804) 359-9331, X313

111 *High School--University* Principal's Scholars Program (Engineering, Math and Science)
University of Illinois at Urbana - Champaign and Chicago high schools, Chicago, Illinois
Sec (9-11) / B / 1976-
$34,703 / CIC + MPME, Univeristy of Illinois / 1400

Two hundred students, their counselors and teachers from each of seven Chicago high schools participated in this program. The project is designed to increase motivational level, academic performance and provide orientation to engineering, mathematics and science. Two hundred students (grades 9-11) participate from each school. In addition to reviewing academic programs with school counselors, the university sponsors monthly meetings in Chicago, arranges visits to industrial sites, conducts two in-service workshops devoted to curricula modification for teachers. One in-service workshop is held for counselors. Parental involvement is a vital part of the program. Parental endorsement is essential in order for the students to participate.
Howard L. Wakeland

112 *Hopi Health Professions* Development Program (Health Sciences)
Hopi Reservation, Arizona
Elem, Sec, Coll / N / 1973-
/ /

The goal of this program is to encourage high ability Hopi youth to enter the health profession so that they may improve health services to Hopi people on the reservation. Elementary students are exposed to the program as part of their regular classroom career education experience. High school students are selected on the basis of thier academic achievement, their potential for doing college work, their interest in health professions and demonstrated social stability. At the elementary level Hopi students are exposed to a wide range of careers through career education in the local schools. Students learn about these careers by listening to workers in their classrooms, visiting areas where people work, both on and off the reservation and with "hands on" activities. High school students selected for the program receive academic counseling, tutoring and guidance. During the summer they participate in a preceptorship program where they work alongside medical professionals, gaining invaluable work exposure experience. High school seniors receive special assistance in gaining admittance to college professional health programs. College students selected for the program receive counseling in such areas as selection of schools, financial aid application and academic course selection. They also participate in summer work programs in health areas. They are encouraged and given assistance to complete the training necessary to achieve their career goals.
Hopi Health Professions Development Program, P.O. Box 123, Oraibi, AZ 86039

113 *Howard University Coop*erative Physics (Physics)
University of Arkansas--Pine Bluff, Pine Bluff, Arkansas (and other institutions)
Coll / All / 1975-
$40,000 / HEW / 2

The goals of this program are to increase the numbers of minorities in physics. The aim is to eventually become independent of the HU Cooperative program by developing enough physics courses on campus, with additional faculty, better lab facilities and expansion and updating of present program.
Dr. Lawrence Davis, Dept. of Mathematics and Physics, University of Arkansas--Pine Bluff, Pine Bluff, AR 71601 (501) 535-6700

114 *Identification of Minorities* for Science and Engineering Program (IMSE) (Engineering)
University of Massachusetts--Amherst, Massachusetts
Sec / B, P / 1974-
/ NSF and others /

The purpose of this program is to increase the numbers of minority group members entering the engineering professions by identifying vocational high school students with the necessary science and mathematics aptitude and/or ability that would make them eligible for admission to the freshmen

engineering program at the University of Massachusetts. Undertaken as an experimental program, this project is directed at re-orienting math curriculum and post-secondary counseling at the high schools in order to provide educational opportunities for 12th-year students to pursue college careers in science and engineering; it is continuing on an expanded scale and in a format which seeks to test the reproducibility of the program and results. A group of math and/or science teachers work with program staff and students, functioning as role models and advocates for the program participants. Prospective participants are selected by the teachers and then interviewed by program staff. After their selection students are enrolled in a Math Aptitude Program (MAP) conducted by teachers in extra-class hours. This phase of the program was designed to further assess math aptitude and project application skills of vocational high school students. Other components include orientation, visits to industry, visits to U-Mass campus with seminars and mini-classes, and a three-month academic skills enrichment program for students chosen for admission to the engineering program.
Dr. Gil Lopez, School of Engineering, University of Massachusetts,
Amherst, MA 01002

115 *Incentive Program in Science* and Engineering (All Sciences)
Physics Department, Colorado State University, Ft. Collins, Colorado
Sec (10-12) / B, C, / 1974-
$130,000 / NSF, Colorado State University / 152

This program was designed to test mechanisms for increasing the flow of minority students into the sciences. The program seeks to intervene in the high school counseling process to urge utilization of existing high school course work. This is done by stimulation of an interest in scientific careers through vocational and career counseling, involvement in science projects, and field trips to science centers. Students are also aided in planning for and applying to colleges and in securing financial aid.
Ms. Caroline Urvater, Department of Physics, Colorado State University,
Fort Collins, CO 80523 (303) 491-6206

116 *Indian Careers in Health*/Native American Careers in Health (Health Sciences)
University of Montana, Missoula, Montana
Coll / N / 1973-
$249,000 / Public Health Service / 40

The participants for this program were obtained largely through heavy high school recruitment for the first two years of the program; current recruitment is based on fewer high school visits with more activities at the university campus. The goals of this program are to recruit Native American students to health careers and to provide student services to encourage the retention of these students at the college level. Both staff and students are recruited at high schools located on seven Montana Indian reservations. A two-day conference is held once a year at the University of Montana to expose high school students to the university atmosphere and to give them an idea of the various health careers. Retention services include: a full-time counselor for financial aid; academic and personal counseling; tutoring for all course work for

which students desire tutoring; information for use by students on health career opportunities and professional school opportunities; and a summer institute for high school graduates and third quarter freshmen for intensive skills development in sciences.
Ray Carlisle, Director, Indian Careers in Health; Barbara Olson, Director, Native American Careers in Health; University of Montana, 626 Eddy Avenue, Missoula, MT 59801

117 *Individualized Instruction* to Facilitate Disadvantaged Students in Dental Education (Dentistry)
Prof / B / 1972-
/ HEW / 40

The purpose of this program is to assist minority students in achieving a dental education. The participants are Black students (approximately 10/year) who have been admitted to the Dental School. A Special Academic Programs Committee was established in the Dental School to assist the minority students who might be experiencing academic difficulties. Special academic counselors and tutors were identified to assist these students. A Special Tailored Educational Program (STEP) was developed to permit a student to take a reduced load during the first and second years of Dental School. This reduction usually increased the total training from four to five years. One important factor in this program was the development of independent learning materials which were available to students for study in an independent environment.
Dr. Ernest F. Moreland, Associate Dean for Academic Affairs, Dental School, University of Maryland at Baltimore, Baltimore, MD 21201

118 *Industrial Chemistry* (Master's Degree Program) (Chemistry)
Atlanta University, Atlanta, Georgia
Grad / B / 1972-
$144,000 / Atlanta University, Chemical Industry / 20

This graduate level program based at Atlanta University, an historically Black institution, is intended to aid students seeking eventual employment in the chemical industry to make the transition from academia to an industrial setting, and to make students more attractive as employees to the chemical industry. The components of the program include (1) traditional chemistry courses; (2) industry-oriented chemistry courses (e.g., polymer chemistry); (3) a seven-month internship in industry; and (4) a research thesis. Of the three students who have graduated from this two-year program all have secured positions in industry.
Dr. Malcolm B. Polk, Director, Atlanta University Chemistry Department, Atlanta, GA 30314 (404) 525-6204

119 *Inner-City Teachers* of Science (Biology, Chemistry, Physics)
Brown University, Providence, Rhode Island
Coll / B / 1971-
$330,000 / NSF, Brown, Providence Public Schools / 499

The purpose of this project is to prepare secondary school science teachers with an emphasis on urban schools. The program consists of specially developed introductory science courses that stress school interactions, in the interrelationship of the sciences, the role of science and technology in modern life; a special field-based course in inner-city education; competency based methods and student teaching; and an apparatus design course. Students demonstrated desired teaching, subject matter competencies and sympathetic understanding of special problems of inner-city pupils and schools.
Professors Herman F. Eschenbacher and Walter E. Massey (Co-directors), Brown University, Providence, RI 02912 (401) 863-2407 and 863-2573 respectively

120 *Instructional Strategies* for the Mexican-American (General Science)
San Antonio Independent School District, San Antonio, Texas
Elem / C / 1975
$46,000 (Annual) / HEW(Title III) /

The participants for this program were selected from a school district which is composed of a 75% Mexican-American population. The goals of this curriculum development project were to identify educational needs of the Mexican-American students and to: produce materials geared toward children with a poor concept of the English language and; improve instructional strategies, while maintaining quality of content area and allowing for development of self-concept.
Alonso M. Perales, Director, Bilingual Education, San Antonio Independent School District, 141 Lavaca Street, San Antonio, TX 78210

121 *Intensive Studies Program* (Biological Sciences, Chemistry, Mathematical Studies)
Southern Illinois University at Edwardsville, Illinois
Sec / B / 1974-
/ State of Illinois / 100

The goals of the program are: (1) to identify highly motivated disadvantaged students academically capable of entering the sciences; (2) to provide a preparatory program to facilitate success in a post-secondary program; and (3) to increase the minority enrollment in the sciences. A math curriculum was developed involving the following: Math 101, basic algebra; Math 105, intermediate algebra; GSM 144, college algebra; Math 140, Pre-calculus and Computer Science. The quasi-modular instructional approach was used (lectures and some in-class tutorial). In the sciences, two innovative courses were introduced using special texts and instructional aids. Special courses in chemistry and biology involved an instructional approach with frequent evaluation. During the one year period, sixty percent of the students pursued some type of post-secondary field involving the sciences. Students enrolled in colleges and universities, technical and vocational programs in the sciences, or in the military or pursued applied mathematical programs in the business field.
Dr. Emil F. Jason, Southern Illinois University at Edwardsville, Box 21, Edwardsville, IL 62026 (618) 692-2333

122 *Interactive Computing* for Atlanta University Center (Computer Operations)
Atlanta University Center (Atlanta, Georgia)/ Bell Labs (Murray Hill, New Jersey)
Coll, Grad / B / 1975-
/ Bell Labs, Atlanta University /

The goal of this program is to provide otherwise unavailable hands-on experience in interactive computing for students and faculty of the Black colleges which comprise the Atlanta University Center, providing an opportunity to develop skills in using computers. Through a time-sharing arrangement with Bell Labs, computers at BTL headquarters in Murray Hill, New Jersey are made available to Atlanta University Center students/faculty during less busy hours, at night and on weekends. The University pays for leased communication lines from its campus to a nearby Bell Labs branch in Norcross, Georgia.

123 *Intercoordinated Allied* Health Program (Allied Health)
Langston University (Langston, Oklahoma) and The University of Oklahoma Health Science Center (Oklahoma City, Oklahoma)
Coll / B / 1975-
None / / 112

The goal of this program is to increase the number of minorities in the allied health professions. This program involves development of an intercoordinated 2+2 Allied Health Program wherein a student completes two years of pre-professional study at Langston University and two years of professional study at the University of Oklahoma Health Science Center. A Bachelor of Science degree is awarded. Several students are participating in this program. Without the program, it would not have been possible to attract and educate these students at Langston University.
William A. Franks, Langston University, P.O. Box 779, Langston, OK 73050

124
Idaho Falls, Idaho *International Science* Experience Center (Science)
Elem, Sec / B, C, N / 1976
/ /

The Science Center was dedicated July, 1976. The Education program is being planned now. So far staff is only considering bi-lingual tours and demonstrations, and some sort of cooperation with the Migrant Education Program. They have requested help in devising more meaningful programs for minorities.
Ruth B. Kunze, Director of Education, Intermountain Science Center,
Box 1802, Idaho Falls, ID 83401

125 *Introduction to Modern Technology* (Program for Selected Upward Bound Students) (Engineering)
College of Engineering, State University of New York at Stony Brook, New York
Sec / B, P / Summers 1974, 75
$4,000 / NSF, HEW /40

The purpose of this program is to develop technological literacy, including an understanding of basic engineering concepts and the impact of technology on people and their environment. Four activity centered mini-courses were used: (1) People and Technology; (2) Fitting Machines to People and Work; (3) Technology and Society; and (4) Technology and the Environment. Student performance on activity sheets and special projects indicated an increase in technological literacy.
Dr. Thomas T. Liao, College of Engineering, State University of New York at Stony Brook, Stony Brook, NY 11794 (516) 246-8420

126 *Introduction to Scientific Thinking* (Engineering, Physics)
Department of Engineering and Computer Science
Coll / (13) / B, P/1968-
/ Federal City College /

The goal of the program at this predominantly Black institution is to prepare students with no science or even mathematics backgrounds for solving quantitative problems. The approach includes special courses designed with very close guidance in the form of review sheets and regulated note-taking. Study techniques are included in the program which assists in the transition from qualitative to quantitative thinking with exercises in the mathematical tools. These introductory courses to scientific thinking and to oceanography involve laboratory exercises designed to familiarize students with measuring devices and scientific equipment.
Anna K. Torosian, 1315 Randolph Street, N.E., Washington, D.C. 20017
(202) 727-2309

127 *Introductory Biology Course Res*tricted to Minority Students (Biology)
University of Nebraska-Lincoln, Nebraska
Coll (13) / B, C / Fall 1974
$60,000 / University of Nebraska-Lincoln / 2 (staff)

The program was initiated by a faculty member in response to a request from a Native American student. The faculty member who initiated the project also taught the lecture portion of the course. The lab instructor was selected by the faculty member because of his teaching skills and cultural background. The purpose of this course was to provide a small class instructional environment within which academic material (in an area traditionally difficult for minority university students) could be presented in a manner consistent with the goals and backgrounds of these students. The course involved a small class, lecture discussion, with selection of course material deemed appropriate for the class (i.e. with, at least in some cases, a minority cultural element), take-home exams (a device normally used by the faculty member in advanced classes), increased assistance in laboratory, increased availability for student classroom participation, including student presentation of materials, total flexibility in order and nature of subjects. It was felt that the course had in part accomplished the desired objectives. It was evident by the end of the project that the range of ability and expectation in the minority class exceeded the range of

ability and expectation in a normal class. Thus, some students benefited greatly from the project, others may have been greatly disappointed in the results. The faculty member involved felt it was a worthwhile project and should be repeated with modifications. An extensive report on the project was filed with the Office of Minority Affairs, University of Nebraska-Lincoln.
John Janvoy, Jr., Professor of Zoology, School of Life Sciences, University of Nebraska-Lincoln, Lincoln, NE 68508 (402) 472-2754

128 *Jobs in Engineering* (Engineering)
Atlanta, Georgia
Sec / B /
/ Private Contract /

Duane Cronk, public relations consultant in the civil engineering and construction industry, developed a 12-minute slide show for Black high school students on careers in civil-construction engineering. This program was developed for a large consulting engineer group of firms currently under contract to build the rapid transit system in Atlanta. The purpose of this show was to convince Atlanta Black students that jobs in engineering are available and to consider engineering as a career.
Duane L. Cronk, Director, Duane L. Cronk and Associates, 100 Bush Street, San Francisco, CA

129 *Joint Program to Increase the Pool* of Chicago Area Minority Secondary School Students Motivated Toward and Capable of Entering Engineering Colleges (Engineering Counseling)
University of Illinois-Chicago Circle (Chicago, Illinois), Illinois Institute of Technology, (Chicago, Illinois), Northwestern University (Evanston, Illinois)
Grad (Tch Ed) / All / 1976-
$38,000 / Sloan Foundation /

This program is designed for teachers and counselors of 9th-11th grade students who could affect students' preparation for and interest in engineering. Its goal is to increase the participants' understanding of engineering activities and awareness of engineering career opportunities for minorities. Participants' understanding of the engineering process, engineering activities and engineering career opportunities are developed through a layman's "course" in engineering. The course is designed to create enthusiasm for the field; the desire is to make students aware of the field and its opportunities. In parallel the program provides an atmosphere wherein the participants and the colleges can jointly explore the problems of identifying and motivating minority students, and generate programs and/or techniques toward those ends.
Dr. Richard Michaels, Head, Urban Systems Laboratory, College of Engineering, UICC, Box 4348, Chicago, IL 60680 (312) 996-4820

130 *Joint Urban* Manpower Program (JUMP) (Technical)
New York, New York; San Francisco, California; St. Louis, Missouri
Sec / All / (1969-)

/ Participating organizations, firms, city, Federal /

The JUMP program offers technical training to disadvantaged inner-city youth who have reached at least the tenth grade of high school. Contacts are made through social service organizations in the urban centers, interviewed by agency and then propective employer. (In New York, Vocational Foundation, Inc. provides technical and administrative assistance to JUMP while classroom instruction is the responsibility of teachers at the Delehanty Institute, School of Drafting) The goals of this program are to provide an opportunity for technically oriented young people of minority groups to reach their potential regardless of inadequate educational beginnings. On-the-job training programs have been developed in which minority youth, after indicating an interest in technical work, have been placed in engineering offices as beginning draftsmen, or in similar technical positions. (The New York JUMP program involves 20 weeks of half-day classroom training/half-day on the job, followed by 24 weeks of full-time on the job.) The effort is considered quite successful. Most of the youth participating in the program had been high school dropouts. The program provides a goal and a means of achieving it. Most trainees are retained as regular employees after graduation from the training program. Many indicate an interest in continuing their education. The New York JUMP program is sponsored by a coalition of engineering & architectural Societies which includes New York Association of Consulting Engineers; New York State Society of Professional Engineers, Metropolitan Chapters; American Institute of Chemical Engineers, New York Section; American Society of Civil Engineers, Metropolitan Section; Institute of Electrical and Electronic Engineers, New York Section, American Society of Heating, Refrigerating and Air Conditioning Engineers, New York Chapter; American Institute of Architects, New York Chapter.
Veronica M. Anthony, c/o Vocational Foundation, 44 East 23rd Street, New York, NY 10010 (212) 777-0700.

131 *Junior College Recruitment* with Emphasis on Predominantly Black Colleges and Black Students (Medical Technology)
Department of Medical Technology, University of Southern Mississippi, Hattiesburg, Mississippi.
Coll / B / 1973-
$250 / Dept. of Medical Technology / 2

Participants in this program were obtained through individual or group contact with junior college students in pre-med tech or MLT programs. The purpose of this program was to facilitate student entry into a degree program with as little loss of credits as possible. This was accomplished via counseling and developing a course by course transfer for each junior college. At present a very high percentage of junior level students are junior college transfers.
Ms. Mabel Jane Hudson, University of Southern Mississippi, Southern Station Box 5316, Hattiesburg, MS 39401

132 *Laboratory Education Adv*ancement Program (LEAP) (Pre-Health, (Biology, Chemistry))
Brown University, Providence, Rhode Island
Sec / B / 1969-
$50,00 / Brown University, HEW / 122

The goals of this program were to increase the number of minority students following a course of graduate study in the biological sciences. There was the recruitment of young Black students to go on to graduate school. Lecturers visited minority institutions and gave lectures on topics related to the biological sciences to increase the interest of minority students to enter that particular field.
Drs. Harper and Richmond; Dr. Harold Amos, Chariman, Committee on Minority Participation, A.S.B.C., Department of Microbiology and Molecular Genetics, Harvard Medical School, 25 Shattuck Street, Boston, MA 02115

136 *Lectures on S*cientific Instrumentation and Applications of Computers (Chemistry)
Lincoln University, Jefferson City, Missouri
Coll / B / 1971-1972
/ Western Electric Co /

This lecture program was open to university faculty and students and to the total community. The purpose of this program was to better acquaint the university community with computer and scientific instrumentation via lectures and demonstrations. Part of this program involved the gift of an atomic absorption spectrophotometer from Western Electric Company which has greatly enriched the university's chemistry program.

137 *LESSON* (Lawrence Livermore Laboratory Elementary School Science Study Of Nature) (Science)
Lawrence Livermore Laboratory, University of California, Livermore, California
Elem (4-6) / All / 1972-
/ Lawrence Livermore Laboratory / 55 scientists, 450 students (1972-1973)

The purpose of LESSON is to enhance the science education of disadvantaged children at the primary grade level by developing and introducing a complete and inexpensive science program. Lab personnel have developed demonstrations and taught children in biology, physics, chemistry, electricity and magnetism, and uses of science. Basic scientific concepts are presented by using inexpensive materials and equipment as part of simple experiments. Teachers who participated in the program toured the lab and were give an orientation to the work done at LLL.
Manuel Perry, Equal Opportunity Administrator, Lawrence Livermore Laboratory, Livermore, CA 94550

138 *LESSON Work*shop (Science)
Lawrence Livermore Lab, Livermore, California
Elem / All / 1974-1975
/ LLL /

Teachers from the area were selected to participate. The purpose of this program was to train teachers in the use of LESSON, a LLL-developed elementary science curriculum for Oakland (East Bay) schools (with populations of disadvantaged students).
Manuel Perry, Equal Opportunity Administrator, Lawrence Livermore Laboratory, Livermore, CA 94550

139 *Lummi Indian School of Aquaculture* (Aquaculture)
Lummi Island, Washington
Coll (13, 14) / N / 1973-
$1,350,000 / / 150

The purpose of the program is to increase job potential of Native Americans through increase in basic and vocational training in aquaculture-related sciences. By means of basic education in biology, marine biology, ichthyology, microbiology, histology, limnology, and other fields, coupled with on-the-job training at fish hatcheries and fish farms the training goal was achieved. Seventy percent of the 150 participants were employed in the field upon completion of their training.
Dr. Paul Winkler, P.O. Box 11, Lummi Island, WA 98262 (206) 758-2368

140 *Marine, Estuarine* and Environmental Studies (Biology/Chemistry - MBS)
Department of Natural Sciences, University of Maryland, Eastern Shore, Princess Anne, Maryland
Coll / B / 1975-
$114,000 / NIH (MBS) / 12

The stated goals of this program are to increase student interest in science; to introduce them to research theory and techniques; and to teach participating students to read, evaluate and interpret scientific publications. The methodology used toward accomplishing these goals include seminars by students and participating scientists; reading assignments and accompanying discussions; instruction in use of scientific equipment; and instruction in designing experiments and analyzing data. The project is on-going and is accomplishing the desired goals.
Dr. Thomas F. Hopkins, Head, Department of Natural Sciences, UMES, Princess Anne, MD 21801

141 *Marquette Inroads* Pre-Engineering (Engineering)
Marquette University, Milwaukee, Wisconsin
Sec (9-12) / B, C, P / 1975-
$54,000 / Local Private / 31

Based on a selection process which utilized information from student and parent interviews, teacher recommendations, school records, Differential Aptitude Tests and Progressive Matrices, students were chosen for achievement, aptitude or motivation. Eighty percent of the students met low income guidelines for Upward Bound. This program, strictly designed for a student's entire high school career, is aimed at acquainting students with the engineering professions and providing them with academic preparation which would enable them to meet requirements for entrance into a college engineering curriculum. The program is to retain students through high school graduation. Summer instruction is focused on engineering projects, with intensive mathematics and some communication instruction. Professional engineers participate in staffing and conduct field experiences. During the academic year students are supported in their high school work, with continued engineering exposure on weekends. Students are advised in selecting appropriate high school courses. The program is specifically intended to address the needs of minority and low income students who lack specific exposure to technical fields, knowledge of

how to prepare for them and reinforcement or encouragment of their study of science and mathematics.
George R. Lowers, Associate Director for Pre-College Programs, Educational Opportunity Program, Marquette University, 1217 W. Wisconsin Avenue, Milwaukee, WI 53233 (414) 224-7368

142 *Math-Science Institute* (Biology, Chemistry, Mathematics)
Diablo Valley College, Pleasant Hill, California
Coll (13, 14) / B, C, / Summer 1973
$14,000 / State of California / 63

The purpose of the Institute was to provide instruction and experiences that would encourage and motivate low-income ethnic minority and other less advantaged students to study mathematics and science and to minimize any hesitation they might have about entering related academic programs and occupations. This was a six-week summer program which emphasized introducing the student to a broad cross-section of mathematics and science, with particularly intensive attention being paid to development of their cognitive skills. The core of the instruction consisted of four courses--biology, chemistry, mathematics, and physics. Students attended the classes daily and were given a maximum of laboratory experience in the subject areas. Laboratory assistants provided tutorial help for each class. In addition, off-campus practitioners in math/science-related fields participated in seminar-like sessions.
Lawrence P. Crouchett, Ed.D., Diablo Valley College, Pleasant Hill, CA 94523 (415) 685-1230 X367

143 A *Mathematics* and Computer Science Development Project for High School Ethnic Minority Students (Computer Science)
Michigan State University, East Lansing, Michigan
Sec (9, 10) / B / 1976-
$19,052 / CIC+MPME, MSU / 30

Thirty Black high school students from three high schools in the Greater East Lansing area participated in this pre-college program designed to interest minority high school students in technical fields and to motivate them toward securing the necessary preparation for college. The program emphasizes skills in problem solving with the assistance of a computer. In addition, the program involves the students' counselors, mathematics/science teachers, and parents. Students are scheduled for one three-hour period (5:30 p.m. to 8:30 p.m.) each week for a total of twenty (20) weeks. Companies with scientific-oriented departments are being contacted to provide summer jobs for participating students as well as providing additional exposure.
Dr. Herman D. Hughes

144 *Mayo Program for Special Health* Career Opportunities (Health Sciences)
Mayo Medical School, Rochester, Minnesota
Sec, Post-Sec, Coll, Grad, Prof / All / 1972-
$75,000 / Mayo Foundation /

The purpose of the program is to encourage minority and disadvantaged students who would return to their home areas to practice to seek careers in the health professions. To accomplish this goal project staff sought to (1) identify these students; (2) motivate them at the high school level; (3) recruit them at college level to participate in various experiences in Mayo labs; (4) attempt to prepare students for higher educational endeavors and to ensure the successful completion of their programs; and (5) encourage students presently enrolled in Mayo Foundation Programs in health-related sciences. Project funds have been used to (1) provide stipend support for high school and college minority students who come to Mayo for experience in various laboratories; (2) provide field trip experiences for minority students from Central High School, Minneapolis, in an effort to stimulate interest in medicine as a career; (3) provide tutorial help as necessary for minority students either before or during enrollment in Mayo Medical School; and (4) defray the expenses of interview trips for minority students coming from outside Minnesota. Some of the results of the program are (1) seven students enrolled in Mayo Medical School; (2) eleven students enrolled in health-related sciences programs; (3) more than 100 high school and college students brought to Mayo for field trips and discussion sessions; (4) five high school students provided with summer experiences in Mayo laboratories; and (5) eight college students provided with summer and interim experiences in Mayo laboratories, some more than once.
Dr. John Thompson, Coordinator, Department of Microbiology, Mayo Medical School, Rochester, MN 55901

145 *Medical Education Preparatory* Program (Pre-Dental, Pre-Medical)
School of Medicine, Southern Illinois University, Carbondale, Illinois
Coll, Grad / All / 1972-
$671,000 / School of Medicine, HEW / 100

The purpose of the program is to assist minority group students and other students from disadvantaged backgrounds to prepare for admissions to and success in medical and dental school. MEDPREP offers over thirty special tutorials, seminars, and classes to enrolled students. Course offerings are in two categories: MEDPREP courses (which include remedial tutorials, correcting long standing deficiencies) and developmental courses. Since the MEDPREP program is closely associated with the School of Medicine program, MEDPREP is able to provide unique experience and courses not available to typical pre-medical students. To date, twenty-one MEDPREP students have matriculated in schools of medicine and one at a school of dental medicine. No MEDPREP student has dropped out of a medical or dental school and in June 1977, the first MEDPREP student is expected to receive the M.D. degree.
Michael L. Rainey, Director, MEDPREP, Wheeler Hall, Southern Illinois University, Carbondale, IL 62901 (618) 536-6671

146 MEDPREP (*Medical Education Preparatory* Program) *Outreach* Tutorial Project (Pre-Dentistry, Pre-Medicine)
Southern Illinois University at Carbondale, Illinois
Sec, Coll (13-14) / All / 1974-
$50,800 / Special Health Career Opportunity Grant - HEW /

The program is designed to reach out to high school and general studies level minority and disadvantaged students who are considering a career in medicine or dentistry. The goals of this program are to prepare and assist minority group students and other disadvantaged students for admission and success in medical and dental school. The main components of this program are: free tutorial assistance in science and mathematics courses; pre-medical and academic advisement and counseling; interaction with other minority and disadvantaged pre-medical and pre-dental students; seminars and experiences to increase awareness of opportunities in health professions; and affiliation with the MEDPREP program, the special medical education preparatory program on the Carbondale campus.
Dr. Mary Pohlmann, Instructor MEDPREP, Wheeler Hall, Room 102, Southern Illinois University, School of Medicine, Carbondale, IL 62901

147 *Medical Education Reinforcement* and Enrichment Program (MEdREP)
(Pre-medicine, Medicine)
Tulane Medical Center, New Orleans, Louisiana
Sec, Coll, Prof / All /
Over $600,000 / Various, including R.W. Johnson Foundation /

The methods of accomplishing these goals include implementation of a number of separate component programs aimed at locating,recruiting and providing a supportive environment to minority or disadvantaged students with ability and potential who are interested in medical education at Tulane or elsewhere: recruitment programs; Summer Academic Reinforcement Program (Pre-Entrance Summer Program or Medical Pre-Admissions Program)to provide a means of strengthening the students' prerequisite knowledge, comprehension and application of scientific information to medicine; Tutorial Academic Year Program--to provide personalized educational opportunities and assistance to student participants during the regular academic year; Summer Directed-Study Program--to provide through a tutorial system individualized assistance to conditional students and through teaching opportunities, a means of challenging the intellectually superior student; Accelerated Medical Education Program--to provide superior and specially qualified students a program which prepares the student in basic premedical education and accelerates his or her movement in time through the medical curriculum with planned instruction; long range and short range evaluations of the effectiveness of programs are planned.
Dr. A. Cherrie Epps, Professor of Medicine, Director, MEdREP, Tulane Medical Center, 1430 Tulane Ave., New Orleans, LA 70112

148 *MESA* (Mathematics, Engineering, Science Achievement Program) - *Balt*imore, Johns Hopkins University Applied Physics Laboratory, Laurel, Maryland
Sec (7-12) / B / 1976
$36,000 / American Instrument Co., Bendix Corp., Computer Sciences Corp. /

Participants in this program include potential achievers as well as those with demonstrated ability and expressed interest in MESA career

fields, students at Northwestern High School and Pimlico Junior High School (a feeder school). Both schools have large populations of Black students. The program aims to attract minority and female students to math, engineering and science fields by providing them with career information in the MESA fields, by encouraging students toward maximum scholastic performance and by counseling them concerning the feasibility of a college education. The program provides students with career and academic program counseling, individualized tutorial assistance from volunteer engineers, scientists and trained college students, and field trips to research centers, engineering firms and university engineering colleges. A scholarship incentive program and summer employment will also be available to eligible participating students. The program is modeled after the Berkeley MESA program sponsored by Lawrence Hall of Science and the College of Engineering, University of California, Berkeley (see MESA-Berkeley).
Lawrence Owes, Project Director, APL - Johns Hopkins University, Laurel, Maryland

149 *MESA* (Mathematics, Engineering, Science Achievement) - *Berk*eley
Lawrence Hall of Science and College of Engineering, University of California, Berkeley, California
Sec / B, C, N / 1970-
$55,000+ / Various / 124+

The major criteria for selecting students was that they be Black, Chicano or Native American, be enrolled in college preparatory mathematics courses and express an interest in preparing for careers in the mathematics and science related fields. This program was created to encourage minority high school youth to enter math, engineering, science and related technical fields. To create a comprehensive and integrated experience for the participating students, the MESA Program is designed to include the following components: Special Counseling--Special counseling is provided for the students in selecting their high school program--course work that will meet all college entrance requirements. Counseling is also provided for the selection of college or university and for the various career opportunities. Tutorials--It was felt that many students of minority background might need additional assistance and encouragement in science and math course work in high school. Therefore, professional engineers and scientists and college students work closely with the MESA students in individualized tutorial sessions to help meet this need. Advanced MESA students assist in the tutoring of the younger students. Field Trips--In addition to the academic and skill-acquisition opportunities of the MESA Program, actual contact with engineering, science and math-related fields and individuals working in these fields is made available through field trips to research centers, universities, computer centers, engineering firms and the like. This direct contact helps to give the students an awareness of the professions they might actually be entering. The Scholarship Incentive Program--Another unique feature of the MESA Program is that of providing scholarship money to those students maintaining strong academic performance in their high school classes.

This scholarship money not only provides an additional incentive but also recognizes special financial pressures on many minority students. The scholarships are awarded on a quarterly basis. Summer Employment--To further develop awareness of actual possibilities of future occupations and to provide employment for the MESA students, summer jobs are made available to many students. Oil refineries, medical labs, engineering firms and the like provide meaningful summer job positions for students.
W. H. Somerton, Professor of Petroleum Engineering, Faculty Sponsor-MESA, University of California, Berkeley, CA 94720

150 *Michigan State University* and University of Michigan Contribution to the CIC+ MPME Program (Engineering and Related Fields)
Michigan State University (East Lansing, Michigan) and University of Michigan (Ann Arbor, Michigan)
Sec (8, 11) / B / 1976-
$75,181 / CIC + MPME, MSU and UM / 893

Participants in the program were administrators, counselors, mathematics and science teachers and 893 eighth and eleventh grade students attending Greusel and Knudsen Junior High Schools and Northeastern Senior High School in Detroit (all with predominantly Black student populations). The project is designed in two phases. Phase I is ten (10) weeks long and provides administrators, counselors and teachers with information on engineering and related fields. Additionally, they are informed of the type and purpose of activities to which students will be exposed in Phase II. In Phase II students meet weekly for various discussion sessions on careers in engineering, demonstrations, and experiments conducted by engineers and engineering students, and/or engineering educators, and field trips to neighboring industries to see engineers perform in their natural work environment.
George Van Dusen, Michigan State University, Anne W. Monterio, University of Michigan

151 *Migrant Workers' Children* Planetarium Experience (Astronomy, Space Sciences)
Museum of Science, Miami, Florida
Elem, Sec / C / 1975
$250 / Latin American Women of the Museum of Science / 230

This project for elementary school children was designed to provide the children with an experience in the Museum and Planetarium. Support was obtained by the Museum organization from local merchants, and students were selected through OMICA, a local organization. The students visited the Museum and planetarium.
Mrs. Inez Lara de Ospina, 1877 S. Bayshore Drive, Miami, FL 33133

152 *Minorities and Science Careers:* Counselor Training and Career Guidance Films (Science counseling)
Los Angeles County Schools, Downey, California
Sec (10) / All / 1974-1975
/NSF /

The project was designed for counselors in high schools with significant minority populations. The purpose of the program was to affect the counseling of minorities and women toward careers in science. The project was implemented through (1) an intensive workshop with counselors in an effort to develop strategies to utilize motivational counseling for the target groups (i.e. ethnic minorities and females); and (2) film production with films developed in the workshops, which will provide counselors with a relevant store of audio-visual tools expressly developed to meet their needs in counseling students in the area of science careers. Some of the films are concerned with identifiable models (both male and female) who are presently pursuing a career in science. The other films were concerned with motivation and exploration of interest in science for students, teachers, and parents in college and career planning.
Ms. Golden A. Harris, Division of Compensatory & Intergroup Programs, Office of Los Angeles County Superintendent of Schools, 9300 East Imperial Highway, Downey, CA 90242

153 *Minorities in Engineering Program* (Engineering)
All RCA Locations
Sec (11) / B, C, P /
/Plants RCA Corp and Indiv. Plants

This special program allows students to discover what engineering is all about, to get a close look at industry in action and to use actual equipment and instruments. Through hands-on experience, lectures and demonstrations, students can obtain information on career opportunities, career counseling, information on engineering colleges and how to prepare oneself for a career in engineering.
Hans Jenny, RCA, Cherry Hill, NJ

154 *Minorities Scholarship Fund of the* Geology Foundation (Geology)
Department of Geological Sciences, University of Texas, Austin, Texas
Coll, Grad / B / 1974-
$200 / Geology Foundation, Department of Geological Sciences / 2

The purpose of this program is to expand the course offerings of students at historically Black Huston-Tillotson College to include courses in the earth sciences. Fees are paid and transportation arranged so that students from Huston-Tillotson College can attend geology courses at the University of Texas. The project will require several years to generate the appropriate level of participation.
Dr. Robert E. Boyer, Department of Geological Sciences, The University of Texas at Austin, Austin TX 78712 (512) 471-5172

155 *Minority and Low Income Engineering*-Potential Students--Summer Program (Computer Science)
Wichita State University, Wichita, Kansas
Sec / All / Summer 1971
/ College of Engineering, WSU / 15

The purpose of this program was to introduce students to a science or engineering career by giving them exposure to hands-on use of computer as motivation for solution of technological problems. (Note): Project Officer commented that whereas in 1971 students were very enthusiastic about using computers in this manner, it may not have the same attraction today.
Dr. W. Berhnart, Department of Aeronautical Engineering, Wichita State University, Wichita, KS 67208 (316) 689-3456

156 *Minority Awareness Program in Geology* (Geology) Earth Sciences Summer Minority Program
University of New Orleans (UNO), New Orleans, Louisiana
Sec, Coll (11-13) / B / Summers 1974, 1975
$22,000 / Amoco, Shell, Conoco /

The goal of this program was to encourage motivated, college-bound minority students to pursue careers in the geosciences. The six-week summer program offers a Geology Workshop which includes a course, The Dynamic and Evolving Earth with lectures, laboratory sessions, field trips, guest lecturers and organized intramural activities. Each student is awarded a $200 scholarship for support during the six-week period of the program. The program is believed to be accomplishing its goals.
Dr. Louis A. Fernandez, Department of Earth Sciences, University of New Orleans, Lakefront, New Orleans, LA 70122 (504) 288-3161 x 325

157 *Minority Biomedical Support Program* (Biology, Chemistry)
New Mexico State University, Las Cruces, New Mexico
Coll, Grad / All / 1974-
/MSB Program/ 26 students, 9 faculty

This program is designed to increase minority participation in the biomedical sciences by supporting student participation in biomedical research with faculty.
Dr. Glenn Kuehn, Associate Professor of Chemistry, New Mexico State University, Las Cruces, NM 88003

158 *Minority Biomedical Support Program (HA)* (MBS) (Biomedicine)
Haskell Indian Junior College, Lawrence, Kansas
Coll (13, 14) / N / 1976-
$87,000 (Annual) / NIH (MBS) / 7

The goal of this program is to expedite entrance of American Indians into biomedical and health related fields by providing financial support and

student involvement in research activities. *Note: The application for this grant was pending for over two years because of restrictions in the federal guidelines preventing primarily federally financed institutions from receiving additonal funds from other federal agencies. An exception was made and funding was approved.
Dr. Don Ahshapanek, Haskell Indian Junior College, Lawrence, KS 66044
(913) 841-2000 X 273

159 *Minority Biomedical Support Program (LIC)* (MBS) (Chemistry)
Lincoln University, Jefferson City, Missouri
Coll / B / 1972-1975
/ NIH (MBS) / 9

The goals of this program are to encourage students to choose health-related careers, help the department continue a long tradition of providing research experience for undergraduates and provide continued support of faculty research. Students are involved in all aspects of research including literature search, experimental design, collection, analysis and interpretation of data, and report of the project. Student and faculty interest in this program is very high.

160 *Minority Biomedical Support Program (LIP)* in Psychology (Psychology)
Lincoln University, Jefferson City, Missouri
Coll / B / 1972-
/ NIH (MBS) / 18

The goals of this program are to train students in research, to prepare students for graduate and professional training in the biomedical sciences and to develop their interest in and capability for doing research. The methodology involves permitting students to engage in all phases of research methodology from the inception of an idea, experimentation, analysis, and presentation in verbal or written form. The project has resulted in several studies from the Research Training Program which have been published and/or presented at meetings.

161 *Minority Biomedical Support Program (PA)* (Biology, Chemistry)
Pan American University, Edinburg, Texas
Coll / C / 1972-
$145,000 / NIH / 105

5

Five faculty members and approximately 100 students from this institution with a predominantly minority population (mostly Hispanic) participated in this program whose purpose is to improve the facilities and research capabilities of minority institutions and to increase the number of minority students in the biomedical sciences. These goals are attained by involving the students in individual research projects and involving the faculty in research programs. The project has accomplished the desired goals; over 90% of the participants are in graduate or medical school.

Dr. Earnest Bacon, Pan American University, Edinburg, TX 78539 (512) 381-3541

162 *Minority Biomedical Support Program (PR)* (MBS) (Biomedicine)
Prairie View A & M University, Prairie View, Texas
Coll (15-16), Grad / B / 1975-
$64,000 / NIH / 7

Seven participants are selected from among undergraduate students currently enrolled and applicants to graduate school who met qualifications for admissions. The goal of the MBS program is to increase the number of ethnic minority individuals in the biomedical sciences by developing and improving opportunities for biomedical research and research participation of ethnic minority faculty and students, and by assisting in the provision of appropriate settings conducive to these opportunities. Participants are directly engaged in research experience which is in line with the goals of the MBS programs. The project is currently in the early stages of operation, but it is giving the students (both graduate and undergraduate) experiences needed to learn and develop research methods of their own, design experiments, and analyze data.
Dr. Jewel E. Berry, Department of Biology, Prairie View A & M University, Prairie View, TX 77445 (713) 857-3912 or 3911

163 *Minority Biomedical Support Program (UN)* (MBS) (Biology, Chemistry, Physics)
United Colleges of San Antonio (St. Mary's University, Oblate College of the Southwest, Incarnate Word College, Our Lady of the Lake College)
Coll / B, C / 1973-
$626,000 / NIH / 108

This program for undergraduate college students attempts to encourage minority students to seek advanced education in various areas of science. A student selection committee was set up to select the applicants. Students after being accepted into the program are exposed to and conduct scientific research under the direction of a faculty member. They present papers, give seminars, etc. Many of the students who participated in the program are now in advanced training in various disciplines.
Sister Mary Daniel Healy, Incarnate Word College, 4301 Broadway, San Antonio, TX 78209

164 *Minority Biomedical Support Program (VI)* (Biology, Chemistry)
Virginia Union University, Richmond, Virginia
Coll / B / 1972-
$229,000 / NIH (MBS) / 33

The purpose of this program at historically Black Virginia Union University was to carry out research activities with the involvement of student researchers. Students participate in these activities with faculty, learn research technique, analysis of data, etc.

W. O. Bradley, Ph.D., Virginia Union University, 1500 North Lombardy Street, Richmond, VA 23220 (804) 359-9331, x 313

165 *Minority Career Recruitment* (Veterinary Medicine)
University of Illinois, Urbana-Champaign Campus, Urbana, Illinois
Prof / B, N / 1971-73
Nominal / None

The goal of this graduate level program was to recruit minorities, principally Blacks, into the student body of this college and to graduate them with the D.V.M. degree. Emphasis was on recruitment to the veterinary curriculum and career by personal contacts by the Dean of the College, a Black faculty member and a Black practitioner in the community colleges and in high school career programs in the Chicago area and in southern Illinois areas. Efforts were made to attract Blacks refused entrance to the Medical School at the University of Illinois. The program was judged by staff to be a total failure since not even interest was shown by students in high schools or colleges.
L. Meyer Jones, University of Illinois, Urbana, IL 61801 (217) 344-3550

166 *Minority Counseling and Recruitment* for Allied Health: Philadelphia Center for Health Careers (Health Education and Counseling), Philadelphia, Pennsylvania
Elem, Sec, Coll / All / 1968-
$80,000 per year / City, Federal, State Institutions / 6,000 per year at present

Participants for this program were obtained by mass communications techniques. Any and all individuals interested in pursuing health careers are welcome to come to the Philadelphia Center for Health Careers for assistance, guidance, counseling and intense experience in a field before commitment. The goals of this program are simply that of counseling and directing into fruitful educational channels any and all individuals interested in health careers with emphasis on minority groups who need the help this Center can provide. The methodology used currently is that of intensive one-to-one counseling of individuals who come to the Center for questions, interests and future or immediate referral to schools and colleges who produce sub-baccalaureate, baccalaureate and doctoral programs in the health careers. The project continues to accomplish its desired goals, and one of the more critical data items to be posited as evidence of this is the growth of minority group population in Temple University's College of Allied Health Professions which grew from 2% to 18% in the years that it has been associated with the project.
William E. Blewett, Ph.D., Executive Director, and Dr. Frank Husted, President, Center for Health Careers, 311 South Juniper St., Philadelphia, PA 19107

167 *Minority Engineering Advancement* (Engineering)
Indiana University - Purdue University at Indianapolis, Indianapolis, Indiana
Sec (10) / B / 1976-
$46,279 / CIC + MPME, Indiana University- Purdue University at Indianapolis/ 60

Twelve predominantly Black high schools work with IUPUI in its Minority Engineering Advancement Program. Students are selected from each high school after completion of the ninth grade. These students participate in reading, mathematics, and science enrichment programs as well as summer workshops. During the school year the students are provided an opportunity to participate in the School of Engineering and Technology sponsored programs. Once a month, the students meet on the IUPUI campus for films, lectures, and discussions. These programs feature local, national, and international personalities from the different fields in engineering. The students receive personal career counseling during the school year and the summer. A teacher-counselor is identified in each high school to provide guidance as well as other services.
Dr. Carol C. Kepic

168 *Minority Engineering Opportunity* Program (MEOP) (Engineering)
University of Maryland - College Park Campus, College Park, Maryland
Sec, Coll (11-13) / All /
$15,000 / University of Maryland, Westinghouse Foundation / 20

The goal of this program is to provide minority students with an overview of opportunities in the field of engineering and to increase the number of minority students in the UMCP Engineering program. A pre-engineering orientation program (two one-week sessions over a three-year period) and tuition scholarships are the elements of the project. Other programs at Maryland supportive of increasing minorities in engineering include a dual degree program with Coppin State, a predominantly Black college,and proposed programs being explored with several other such institutions. In an effort to increase the retention potential of minority students in engineering, the Office of Minority Student Education organized a Minority Engineering Society in April, 1975. In addition to focusing on retention the organization assists OMSE in identifying and attracting minority students with interests in engineering to College Park; the organization brings in speakers from industry and business to discuss the nature of employment opportunities and the special type of preparation needed today for certain careers; and the organization seeks to establish communication with similar groups on other college and university campuses.
Dr. William Wockenfuss and Dr. Andrew Goodrich, c/o College of Engineering, University of Maryland, College Park, MD 20742 (301) 454-2421

169 *Minority Engineering Program* (Engineering)
Delta College, University Center, Michigan
Sec (11, 12) / B, C / 1975-
$11,000 / Dow, Dow-Corning / 60

The purpose of this program is to introduce area high school students to careers in engineering. Groups of students are brought to the campus and tour an area industry. The students view films and film strips on various engineering specialties and are provided information describing courses needed in the pre-engineering program. Students can enroll in a college level course, "Introduction to Engineering." A number of the students have enrolled as engineering majors in senior institutions and some in Delta's pre-engineering program.
Dr. Everett N. Luce, Special Assistant to the President, Delta College, University Center, MI 48710

170 *Minority Engineering Program (E)* (Engineering)
College of Engineering, University of Delaware
Coll / B / 1972-
$300,000 / U of Delaware, Various firms / 40

This program is designed to produce graduate engineers. Students in the program are encouraged to attend a summer academic and social orientation to the college immediately following graduation from high school. Depending on individual need, students may select mathematics and English courses to take during the summer session. Students receive regular counseling from their advisors and tutorial help whenever needed. Financial aid is readily available to academically qualified participants. Project officers report that the program is accomplishing its goals of producing engineers and increasing the number of minority engineers.
Irwin G. Greenfield, Dean, College of Engineering, University of Delaware, Newark, DE 19711 (302) 738-2401

171 *Minority-Engineering Program (MEP)* (Computer Science, Engineering)
California State University, Northridge, California
Coll / All / 1973-
$45,000 / School of Engineering, Private Industry / 119

Various recruitment mechanisms are directed at high school seniors. The goals of this program are to attract minority students into the study of engineering or computer science at CSUN and provide them with special support to improve their chance of success. The retention program includes close advisement, emphasis on orientation and adjustment to the environment of the institution, a concerted motivational program, study skills building, comprehensive tutoring programs, personal counseling, career development, etc.
Dr. Raymond B. Landis, School of Engineering, California State University, Northridge, CA 91324

172 *Minority Engineering Programs (J*uniors) (Engineering)
Illinois Institute of Technology, Chicago, Illinois
Sec (11) / All/
/ 84 in Saturday Program, 57 in six week summer program

The goals of this program are to increase the number of minority students who elect engineering as a professional career. The program is aimed at early identification and support of students who might be interested in engineering. An IIT staff member visits high schools and by working with the high school counselors, seeks to identify minority juniors with engineering potential and interest from among their top students. After interviewing selection of students is made and they are offered a chance to participate in IIT programs. In many cases this process has involved interviews of the parents. The programs for high school juniors include the Saturday Program (all day sessions devoted to academics e.g. morning classes in math, communications and physical principles followed by afternoon hands-on laboratory experience involving the morning academics); a six-week Pre-College Program (2 weeks of an academic program and four weeks of a "development of interpersonal relationships program, also known as 'Survival Tech'"); and a College Counseling Program (assistance in planning the senior year and advice concerning applications to engineering college).
Nate Thomas, Minority Coordinator of Cooperative Education, Illinois Institute of Technology, Chicago, IL 60616

173 *Minority Engineering Programs (S*eniors) (Engineering)
Illinois Institute of Technology, Chicago, Illinois
Sec (12) / All /
/29 in Pre-Co-Op Program (5 in 1974)

All junior students who have become associated with any part of the overall program are invited to participate in a Saturday program during their senior year in high school. The summer following graduation the students participate in the Pre-Co-op Program. The purpose of the Saturday program is reinforcement of the students' academic excellence. The Pre-Co-op Program is important to the overall development of success models and experience for the student to utilize as motivation in embarking upon development of a professional career in engineering. The added factor is the opportunity for income to meet college expenses. The academics include a 32-week course of pre-calculus algebra, trigonometry and pre-college chemistry. A speed reading and comprehension two night-per-week course is also available from IIT's Institute for Psychological Services for students with special problems. The Pre-Co-op Program involves summer work experience for the students in a local industry which involves some technical activity in an area of interest to the students.
Nate Thomas, Minority Coordinator of Cooperative Education, Illinois Institute of Technology, Chicago, IL 60616

174 *Minority Institutions (B)* Science Improvement Project (Biology, Chemistry, Physics, Mathematics)
Barber-Scotia College, Concord, North Carolina
Coll / B / 1974-
$205,000 / NSF (MISIP) / 132

The goal of this program is to improve science education at this predominantly Black college. The implementation of the program involved acquisition of scientific equipment, renovation of the classrooms, development of curricula in biology, chemistry, physics, mathematics, and interdisciplinary courses.
Dr. K. Rajasekhara, Director, Center for Natural Sciences and Applied Health Professions, Barber-Scotia College, Concord, NC 28025

175 *Minority Institutions (D)* Science Improvement Program (Biology, Chemistry, Physics and Mathematics)
Daniel Payne College, Birmingham, Alabama
Coll / B / 1975-
$50,000 (1975-77) / NSF / 200

The goals of this program are to improve the quality of science programs with improved lab facilities, more faculty, training,etc.
Dr. Thomas Davidson, Biology Department, 2101 W. Sayreton Road, Daniel Payne College, Birmingham, AL 35214 (205) 798-8240

176 *Minority Institutions (G)* Science Improvement Program (MISIP) (All Sciences)
College of Ganado, Ganado, Arizona
Coll (13, 14) / Mostly N, B, C / 1974-
$295,000 / NSF / 10

The stated goals of this program are to motivate more Indian youth to enter college and science careers and to provide better science education for Indian youth in this institution. The methodology used toward accomplishing these goals included establishing a science center in the college, hiring more instructors, developing more and better courses in sciences, math, social sciences, especially in the basic sciences, plus whatever locally needed, renovating science rooms, labs, and purchasing equipment and supplies.
Professor J. I. Jump and Dr. Joe Stickler, Division Chairman, College of Ganado, Ganado, AZ 86505 (602) 755-3442

177 *Minority Institutions (VI)* Science Improvement Program (Biology, Chemistry, Physics, Mathematics)
Virginia Union University, Richmond, Virginia
Coll / B / 1974-1977
$192,000 (to date) (218,000 total award) / NSF

The goal of this program is to improve the science and mathematics instructional programs at predominantly Black Virginia Union University by faculty and curricular improvements. The methods of accomplishing these goals include hiring additional faculty, providing for faculty leave, undertaking course and curriculum development, acquiring instructional equipment and curricular materials, and involving student assistants in

implementing this improvement program. Faculty have been added and curricula modifications are underway. There has been an increase in faculty and student morale as well as improvement in student performance in the subject areas targeted in this program.
Dr. M. E. Toney, Jr., Virginia Union University, Richmond, VA 23220

178 *Minority Institutions (VO)* Science Improvement Program (Biology)
Voorhees College, Denmark, South Carolina
Coll / B / 1974-
$315,000 / NSF/

The individuals impacted by this program are minority students mainly from rural communities of South Carolina. The purpose of the program is to improve the science instruction received by students at Voorhees College. This is to be accomplished by an expansion of instructional facilities, curriculum enrichment (the addition of new courses), the addition of new faculty and improvement of instruction.
Dr. Ajit S. Randhawa, Professor of Biology, Voorhees College, Denmark, SC 29042

179 *Minority Pre-Co-op* Program for High School Graduates (Engineering, Physical Sciences)
Nuclear Division, Union Carbide Corporation, Oak Ridge, Tennessee
Coll (13) / B / 1970-
$64,000 / Energy Research and Development Administration / 105

This program which serves 10-20 students per year is intended to encourage minority students toward careers in science and engineering. Students are selected by the colleges because of interest in engineering and science. If over eighteen years of age, students work at related jobs during the summer before entering college. Tuition, books and fees are paid during the freshman year. Students enter a regular co-op program during subsequent years and co-op jobs are provided in the Nuclear Division. Initially (1970-1972) the program involved science and engineering, but in 1973 emphasis was placed on engineering only. More than 40 percent of the students continued studies in disciplines chosen initially. Only about 26 percent of the students dropped out of college and the others, while remaining in college, changed to another field.
W. C. Kuykendall, Union Carbide Corporation, Nuclear Division, P. O. Box M, Oak Ridge, TN 37830

180 The *Minority Project* (Nursing)
Portland Community College, Portland, Oregon
Coll (13, 14) / B, C / 1972-1975
$30,000 / HEW / 90

This program was designed to recruit and tutor minority students to enable them to enter the regular nursing program. Fifteen to thirty students

participated each year druing the three years of operation. Most (60%) of the students completed the nursing program. Twenty percent passed State Board exams on the first attempt. Low reading ability was reported to be the greatest problem.
Rose Christianson, Portland Community College, 12000 S.W. 49th, Portland, OR 97219 (503) 244-6111

181 *Minority Recruitment and Retention* (Medicine)
University of Miami School of Medicine, Miami, Florida
Sec, Coll, Prof / B / 1973 (?)-
$200,000 / University of Miami

This program involves student, faculty and administration representatives, and volunteer physicians in an effort to increase the number of minority students enrolling in and graduating from medical school. The project has attempted to work with young junior and senior high school students and their advisors to channel trainees into the health science fields. At the college level, it has worked with pre-med advisors, but major emphasis has been intramural (retention). Project officers report an increased number of applicants and higher retention rates.
Dr. Bernard J. Fogel, Assistant Vice President for Medical Affairs, University of Miami,School of Medicine, P.O. Box 875, Miami, Florida (305) 547-6566

182 *Minority Recruitment for Veterinary* Medicine, (Veterinary Medicine)
College of Veterinary Medicine, University of Minnesota, St. Paul, Minnesota
Sec, Coll, Grad / All / 1974-
$10,000 / College of Veterinary Medicine / Approx 5

This is a program designed to increase minority participation in veterinary medicine. Referral of students to programs for academic enrichment and work experience as well as efforts to improve qualifications for admission and retention in the professional school are components of this program. The methodology includes: (a) increasing the pool of minority applicants by waiving for minority applicants the preference in admission for residents of Minnesota, Nebraska, North Dakota, and Wisconsin; (b) increasing the likelihood of application by waiving for minorities the deadlines for application and course completion, if necessary; (c) publishing a Native American directory of veterinary medical education programs; (d) referring students for participation in and recruiting students from programs for academic enrichment, work programs for clinic and laboratory exposure, etc; and (e) evaluating applications from minorities by maintaining a Subcommittee for Socially, Educationally, and/or Economically Disadvantaged Applicants as part of the Admissions and Scholastic Standing Committee. The number of applications by minorities, although still small, has increased markedly. Still, few applicants are qualified, illustrating the necessity for earlier identification of students' interests and earlier academic enrichment.

W. L. Andberg Klohs, Administrative Assistant, (Coordinator of Minority Recruitment), 301 Veterinary Science Building, University of Minnesota, St. Paul, MN 55108 (612) 376-3892

183 *Minority Scientists Resource List* (Science Education)
Cleveland State University, Cleveland, Ohio
Coll, Grad / B /
/ /

A resource list of local Black science professionals was prepared by Dr. Gatewood and distributed to students in his science education classes. The purpose of the effort was to provide teachers and future teachers with names of individuals who can serve as role models for elementary school children. The list is to be utilized by elementary school teachers who invite scientists to the classroom to talk to the students. Many students have been motivated by the talks. The list is being revised, and one is being drawn up to include the Hispanic communities.
Claude W. Gatewood, Professor, Coordinator, Science Education, Dept. of Elementary and Special Education, Cleveland State University, Cleveland, OH 44115

184 *Minority Student Training for Bio*medical Research (Biomedicine)
California State University, Los Angeles, California
Coll, Grad / B, C, N 1973-
$803,000 / NIH / 50 per year

This project is intended to increase the number of minority students going into biomedical careers and to improve their chances for success. Thirty-five to forty students and fifteen faculty members participate yearly. Students serve as research assistants, first as trainees and gradually with greater individual responsibility in research as they develop research techniques and practices. They participate in seminars, give papers on their research at meetings off and on campus, nationally and internationally. The success of the program is evidenced by the academic achievement, motivation and enthusiasm of the students, the rate of acceptance of participants into graduate programs, and student participation in writing scientific articles and presenting papers. Further evidence is found in the strengthening of the university's research capability, and research activity among the faculty. The fusion of the science departments which is a major impact of this project has resulted in faculty and students becoming extensively informed about basic science and research progress in fields other than their own. There is increased rapport among students and faculty. Additionally, department faculty have received several awards and grants.
Lloyd N. Ferguson, Professor of Chemistry, California State University, Los Angeles, CA 90032 (213) 224-3613

185 *Mobile Unit* for Inner-City Engineering Career Guidance (Engineering)
Philadelphia, Pennsylvania
Elem, Sec / B / 1969-?

/ Wm. Bedford, P.E.; Pennsylvania Society of Professional Engineers, National Society of Professional Engineers/ Hundreds of students, teachers, parents and counselors

The goal of this program was to inform minority students of career opportunities in engineering. A trailer was purchased and equipped with models, photographs, educational and guidance materials; photographs of Black engineers at work were viewed by students while tapes explained the exhibits and employment opportunities in engineering. Financed initially solely by Mr. Bedford, himself a Black engineer, the project obtained the financial support of the PSPE and NSPE and the trailer was donated to the Philadelphia School District (Career Development Division). It is used to inform multiracial student groups of career opportunities in engineering and other science careers.

186 *MPH* (Master of Public Health) *Degree Program* for Native Americans (Public Health)
School of Public Health, University of California, Berkeley, California
Grad / N / 1971-
/OEO/ 68 graduated or now enrolled

Applicants must be American Indian or Alaska Native, must possess a bachelors degree, must be accepted by a School of Public Health and must pass criteria set up by the selection committee of the Indian Advisory Board to the program. The goals of this program are to stimulate the acquisition of the MPH by Native Americans so that they will be credentialed to assume program head and policy making positions at federal, state and local levels. The Berkeley program also offers support to qualifying Native American students at other Schools of Public Health, including the University of Texas; University of Minnesota; University of Washington; University of California, Los Angeles; Loma Linda University; University of North Carolina; and University of Michigan. The program provides traineeships and tuition for Indian students in the graduate school of public health. There are recruiting and support mechanisms for the students as well. Thirty-nine students have graduated from MPH programs. Three of these have gone on to medical school and one to further graduate study. A majority of those employed hold positions with tribes, Indian Health Service or in other programs directly concerned with Indian needs.

Elaine Walbroeck, Director, MPH Program for Native Americans, School of Public Health, University of California, Berkeley, CA 94720

187 *MUSE (Motivating* Urban Science Education) (General Science)
In three Junior High Schools--Berkeley, California
Sec (7-9) / All / 1970-71
/ 70 /

The purpose of this program was to motivate an interest in science in disadvantaged youth. Junior high school students were provided with special instructional materials and equipment, visits to Lawrence Hall of Science and contacts with interested high school students, young college graduates and scientists. There was positive response to the program. Students who participated in MUSE showed a higher interest in science, more realistic attitudes about the nature of scientific research and more positive attitudes about "becoming scientists" than did their non-MUSE participant peers.
Rita W. Peterson, Assist. Prof. of Education, Department of Teacher Education, California State University, Hayward, CA 94542

188 *Museum Job* Opportunities for Native American Students (Science)
Science Museum of Minnesota, St. Paul, Minnesota
Post-Sec / N /
/ Federal/

The goals of this program were to provide young Indian people with an opportunity to explore career alternatives and be exposed to the museum environment.
Ms. Karla McGray, Administrative Assistant, Education Department, Science Museum of Minnesota, St. Paul, MN 55101

189 *National Achievement Sch*olarship Program (Electrical Engineering)
Bell Laboratories, Murray Hill, New Jersey
Coll / B / 1966-
/ Bell Laboratories / 23

NASP is a division of the National Merit Scholarship Program. The goals of this program are to identify and support college study of academically able Black high school students with an interest in electrical engineering. The students are awarded four-year scholarships determined on the individual winner's need. They are also offered summer employment plus consideration for regular employment upon graduation. Student winners are brought to Bell Labs for a tour of facilities, orientation on careers in industry, etc.

190 *Native American Career Education* in Natural Resources (Natural Resources)
Humboldt State University, Arcata, California
Coll / N / 1974-
$150,000 / HEW (Fund for the Improvement of Post-Secondary Education)/ 33

The goal of this college level program is to increase Native American participation at professional levels in natural resource careers. Recruitment and retention efforts were made through guidance counseling, tutorial assistance and provision of financial aid. The project is not complete, but indications are that its impact will be significant.
C. J. Bryant, Director NACENR Program, Humboldt State University, Arcata, CA 95521 (707) 826-4994.

191 *Native American Program,* College of Engineering (NAPCOE) (Engineering)
University of New Mexico, Albuquerque and Los Alamos, New Mexico
Coll / N / 1975-
$200,000 / Sloan Foundation, University of New Mexico / 42

Forty-two college students were selected from among 109 applicants. Stated goals of the program are to facilitate Native Americans graduating as engineers. The program itself focuses upon spending three years to complete through the sophomore year in engineering. It is believed that, upon completing the sophomore year, the students will be better able to complete their junior and senior years. The methodology includes orientation, counseling, tutoring, group building, orientation with respect to Indian and other engineering problems, minimizing competition and encouraging group participation in projects. All program activities--planning, counseling, etc.--involve input from Native Americans. Native American tribes helped develop the program and continue to lend support.
Dr. F. C. Wessling, Academic Administrator, NAPCOE, Farris Engineering Center, Room 320, College of Engineering, University of New Mexico, Albuquerque, NM 87131 (505) 277-5521

192 *Native American Science* Training (Biology)
University of Utah, Salt Lake City, Utah
Coll / N / 1971-
$50,000 / University of Utah / 6

The goal of this project was to prepare Native American students to participate in science careers. Full university scholarships, careful monitoring and tutorial help were provided these former students of reservation high schools. The program which involved six students over the past six years was deemed unsuccessful by the project officers.
Patricia J. Berger, Department of Biology, University of Utah, Salt Lake City, UT 84112 (801) 581-5950

193 *Natural Sciences* (Biology, Chemistry, Physical Science, Mathematics)
Navajo Community College, Tsaile, Arizona
Coll / N / 1969-
$130,000 / Navajo CC, Navajo Health Authority / 200

This program for 30-40 regular students per year is designed to strengthen the scientific and mathematical background of students so that they can go on into programs in nursing, allied health and the "hard" sciences. The program consists of careful selection of textbook material chosen to match the reading levels of the students; tutorial sessions to help enhance the material learned in class and the addition of cultural material to the curriculum so as to relate it better to life on the reservation. More students are entering the sciences and health fields. Their scientific acuity is increasing. A few have gone on to four-year institutions

and are succeeding relatively well, although from the point of view of staff, a few still have their problems despite excellent promise.
Dr. Raymond J. Barreras, Navajo Community College, Tsaile, AZ 86556
(602) 724-3311 x 266

194 *Nature Lab Program* (Called EMU Program 1970-1975) (Environmental Science)
Charlotte Nature Museum, Charlotte, North Carolina
Elem / B / Summer 1970-
$24,000 / Various / 22,000

The program was conducted at neighborhood centers organized for disadvantaged youngsters during the summer. The objective of the Nature Lab Program was to help children develop an awareness of science and their environment. The program involves hands-on experiences, science and the natural environment, man-made environments and creating science projects. It allows children to learn, explore and discover by using their familiar neighborhood as a "lab".
Russell I. Peithman, Charlotte Nature Museum, 1658 Sterling Road,
Charlotte, NC 28209 (704) 333-0506

195 *Neighborhood Tree Corps* (Environmental Education)
Bedford Stuyvesant, Brooklyn, New York
Elem, Sec (5-9) / B, P / 1969-
$80,000 / Council on the Arts / 300

The original participants in the program were recruited from neighborhood schools in Bed-Stuy on a voluntary basis. Since then the interest has become so widespread that students ask to join the program. In fact each year the program has a waiting list. The goal of the program is to expose young people to the fields of horticulture and tree care and to build an urban environmental education center in Bedford-Stuyvesant which would serve as a model to other urban areas. The members of the neighborhood tree corp attend classes, work in gardens, care for city trees or go on environmental education trips two afternoons a week and Saturday mornings. The Magnolia Tree Earth Center members, community residents and the neighborhood Tree Corps participate in various fund raising activities to raise funds for the environmental education center.
Miss Joan Edwards & Mrs. Hattie Carthan, 1512 Fulton Street, Brooklyn,
NY 11216

196 *North Carolina Health (E)* Manpower Development Program (Health)
Elizabeth City, North Carolina
Sec, Coll / All / Summers 1974, 1975
$10,000 / Kate B. Reynolds Health Care Trust / 34

This program at predominantly Black Elizabeth City State University, was

intended to acquaint students interested in health careers with first-hand experience in health care implementation. Students were employed on an internship basis at various health-related facilities. Subsequent to their participation in this project, several summer clinical work-study students have enrolled in various health-related programs.
Mr. Walter R. Winborne, Elizabeth City State University, Elizabeth City, NC 27909

197 *North Carolina Health (P)* Manpower Development (Health Sciences)
Pembroke State University
Sec, Coll / B, N / 1973-
$10,000 per year / Federal, State /

The goal of this program is to increase the number of minority and disadvantaged persons trained and employed in health careers. The center: recruits minority and disadvantaged students into health training programs and health careers; assists minority and disadvantaged students in admission to college level and professional health training programs; identifies adequate financial resources for minority and disadvantaged students interested in pursuing professional health careers, and provides counseling and retention services for minority and disadvantaged students in health training programs. The office counsels approximately five to ten students per week and also sponsors a Health Careers Club (10 active members) which engages in volunteer activities and tries to generate interest in health careers. In addition to counseling students at PSU, staff duties also include visiting the high schools in the immediate area which have a heavy concentration of Indian pupils. Since the Fall of 1975, approximately five-hundred (500) minority high school students have been informed about the opportunities in health careers. Every summer since 1974, the NCHMDP sponsors a Clinical Work-Study Program for approximately twenty (20) minority and disadvantaged students which enables young people to gain on-the-job training in a health field, while at the same time earn money. The success of this program can best be measured by the growing awareness of these students of the many opportunities in the health care field. Last year (1975), five (5) PSU Indian students entered Medical Schools, two (2) were admitted to Dental School, three (3) went into Pharmacy. (Note: Similar programs are also ongoing at Elizabeth City State University and N.C. Central University)
Dr. Josef L. Mandel, Regional Director, NC HMDP, Human Services Center, Pembroke State University, Pembroke, NC 28372 (919)521-4214 X270

198 *Northeastern Oklahoma* State University Minority Student Science Research Program (Biomedicine, Environmental)
Northeastern Oklahoma State University, Tahlequah, Oklahoma
Coll / B, N / 1974-
$350,000 / NIH (MBS) / 23

This program is designed to enhance the chances of success of Native American and Black American students in careers in the biomedical sciences and to alter the University and community intellectual climate by breaking down traditional psycho-social barriers inhibiting minority students from

entering the biomedical sciences. Students were recruited through response to widely distributed brochures, by word of mouth of students in the program and through recommendations of the Eastern Oklahoma Indian Health Careers Program. Each student was screened on the basis of grade point and extensive interviews with all faculty involved in the program. Funding was provided for the establishment of biomedical-environmentally oriented research projects on the campus through laboratory renovation, equipment purchases, library enhancement, faculty release time, and student stipends. Minority students were asked to become junior investigators in each project. Funding was also provided for a seminar service with minority persons as speakers to serve as role models.
Dr. C. Clinton Smith, Jr., Division of Natural Science and Mathematics, Northeastern Oklahoma State University, Tahlequah, OK 74464 (918) 456-5511 x 2610

199 *Nuclear Engineering Education* for the Disadvantaged (Nuclear Science, Engineering)
American Nuclear Society (ANS)
Sec, Coll / All / 1972-
$2,000 / American Nuclear Society / 20

The goal of this program is to provide direct educational and professional assistance to the culturally and economically disadvantaged for the purpose of encouraging participation in nuclear science and technology. The ANS has been working with nuclear engineering departments in universities and colleges to provide scholarship and curricular development support and other types of support such as internships and fellowships. The "1-2-1" program is designed to bring together interested high school students and nuclear scientists and engineers on a one-to-one basis to aid in student motivation and development. Funds have been used for supplies, student transportation costs, and for a token remuneration to the students.
Dr. George A. Ferguson, School of Engineering, Howard University, Washington, D.C. 20059 (202) 636-6605

200 *Oceanographic Summer Laboratory* Program for Inner-City Youth (Marine Science)
Miami, Florida
Sec / B, N / Summers, 1969-1974
/ Dade County Public Schools, Neighborhood Youth Corps / 42

The purpose of this program was to provide capable inner-city students with the opportunity of work experience in government scientific labs. Students were selected mostly on teacher recommendations and interviews. Meetings were held with students, parents and scientists prior to students going into labs. Scientists who work with students were carefully selected. The program was under continuous supervision by Dade County Public Schools. Many of the student participants were motivated to remain in school and attend college.
Harriet Ehrhard, 1444 Biscayne Blvd., Room 309, Miami, FL 33132
(305) 350-3506

201 The *Oklahoma State* University/Langston University Chemistry Colloquium Program (Chemistry)
Stillwater and Langston, Oklahoma
Coll / B / 1974-
$2000 / AMOCO Foundation / 300

The purpose of the program is to provide young Black undergraduates at historically Black Langston University with examples of Black chemists who have reached high professional stature and to acquaint the Chemistry Department at OSU with the research program of outstanding Black chemists. Another objective of the program is to bring the scientists at the participating universities into closer contact. Outstanding Black chemists are brought to both campuses to present seminars. Reports from the faculty and students of both schools have been favorable, as was evaluation of the funding agency.
Dr. G. J. Mains, Chemistry Department, PS 119, Oklahoma State University, Stillwater, OK 74074 (405) 372-6211 X7215

202 *One-Year-on-Campus* Program (Engineering, Physical Sciences)
Sandia Laboratories, Albuquerque, New Mexico and Livermore, California
Grad (M.S.) / B, C / 1968-
$123,000 (1975) / Sandia / 88

This is a program for master's degree students designed to increase the number of minority and female employees at the staff member or professional level, as dictated by the needs of the scientific organizations. Participants are employees obtained through supervisor interviews in various departments. Considerations are grade point average, discipline, willingness to relocate, and desire to obtain a master's degree. Participants receive full financial support (tuition, fees, books, etc.) at an outstanding university offering the individual's discipline. Participants also receive a monthly living stipend while the department they are enrolled in at the selected university receives a grant equal to the amount of tuition.
Ms. Mary T. Quigley, Orgn. 4321, Sandia Laboratories, Albuquerque, NM 87115
(505) 264-7361

203 *Opportunities in Health* for Minorities (Health--general)
University of Minnesota, Minneapolis, Minnesota
Sec, Coll, Grad, Prof / All / 1972-1975
$557,000 / PHS, Office of Health Resources Development, Special Health Careers Opportunity Grant, University of Minnesota / 548

The purpose of this program is to increase the number of minority students entering the health sciences at the University of Minnesota. This program not only involved increasing the enrollment of minority students in these fields, but also provided the supportive services necessary to ensure their graduation and return to areas having a shortage of health care personnel. The program sought to prepare students for all health fields by early identification at the pre-college level, as well as by provision of a support structure for students already in the health sciences. This was done by providing information, counseling, support, special courses, informal tours of health care facilities, tutorial services, and financial assistance. Separate component programs include the following:

(1) Post Bacculaureate Program to enable students already possessing a first degree to prepare themselves for matriculation in a health professional curriculum.

(2) Summer Academic Enrichment Program to enable incoming students to make up deficiencies prior to their entry into the first year of their professional program by exposing them to content areas similar to those in their professional schools, providing them with study skills and academic counseling, etc.

(3) Career Opportunities in Health Sciences Program to induce minority or disadvantaged youth to consider a career in the health sciences by involving interested and capable high school students in a summer of laboratory and clinical work at the University of Minnesota Health Sciences Center and affiliate hospitals.

(4) Career Days Activities to inform high school students of the career opportunities available in the health sciences by bringing them to the University campus where they are able to observe practicing health professionals at work and to visit within the various health science units. These activities were designed for the particular racial/ethnic group broughtto campus at that time; thus there were targeted expositions for Native American, Chicano/Latino and Black students. A system of visits to area high schools was instituted so that information on health careers in general and health career opportunities at the University of Minnesota could be presented to these students.

It was noted by staff that insufficient time was spent in directing students to other health service/science areas rather than just toward medicine.
H. Geoffrey Fisher, 1-168 Frontier Hall, University of Minnesota, Minneapolis, MN 55455

204 *Oregon Museum of Science* and Industry/*Housing* Authority of Portland Activities (General Science)
Oregon Museum of Science and Industry, Portland, Oregon
Elem (1-8) / B, N / 1971-1976
$14,000 / OMSI, HAP / 875

Dean B. Ivey, OMSI, 4015 S. W. Canyon Rd., Portland, OR (503) 248-5945

205 The *Outdoor Education* Program (General Science)
Lazy W Ranch, Cleveland National Forest, San Juan Capistrano, California
Elem (5), Sec (9) / B, C / 1973-1974
/ / 6,575

The goals of this program were to 1) improve intergroup relations; 2) to improve academic performance through exposure to an outdoor subject matter context; 3) to have student participants develop at least one project in the areas of astronomy, animal and plant life, ecology, or conservation;

and 4) to have 75% of the pupils take a staff test and answer 75% of the questions correctly. Pupils of different ethnic backgrounds were assigned to bunkhouses in groups. These groups worked, lived, studied and played together. Instructional activities featured the study of various branches of science (astronomy, botany, ecology). Organized recreational activities were conducted each day. The ratings by pupils, junior counselors and parents ranged from "good" to "very good" on a 1-5, very poor-very good scale.
Outdoor Education Office, Bellevue Youth Services Center Branch, 3317 Bellevue Avenue, Los Angeles, CA (213) 665-4626

206 *Pacific Southwest College Recruit*ment of Minorities and Women (Forestry, Natural Resources)
Berkeley, California
Coll / B, C, N / 1970-
$15,000 / PSW Forest and Range Experiment Station / 75

The goal of this program is to stimulate interest in forestry and natural resource education among ethnic minorities and women students. After identification of interested students academic and career counseling were provided. During the summer, jobs were developed at this facility or at one of the seventeen National Forests in California. In a little over four years fifteen students have been assisted in gaining permanent employment with the Forest Service, United States Fish and Wildlife Services, and the California Division of Parks and Recreation.
B. Ernest Ford, P. O. Box 245, Berkeley, CA 94621

207 *Paired Schools Science* Enrichment Program (General Science)
The Franklin Institute, Philadelphia, Pennsylvania
Elem (6) / B, P / 1969 0
$140,000 / USOE (Title I) / 9000

From paired schools (a 6th grade class of Black public school children and a 6th grade class of Black non-public school children, white public school or non-public school children or Spanish-speaking public school children) students of various backgrounds are brought to Franklin Institute one day per week for a six week cycle of discovery-oriented workshops, field trips, exploration of the Institute, lectures, demonstrations and discussions on the physical and biological sciences conducted by Institute staff. This intercultural learning experience seeks to augment science teaching in elementary classrooms. The goals of the project are to broaden and enrich the pupil's knowledge of basic science concepts, to develop an awareness of environmental problems and their implications, while promoting cooperative work between students of different backgrounds, giving them hands-on experience with science materials not readily available in their own schools. Parents are invited and encouraged to participate in project activities. Home-school teachers are encouraged to follow up Institute lessons.
Daniel L. Goldwater, The Franklin Institute, Philadelphia, PA 19103 (215) 448-1111

208 *Peer Teaching Program* (Biology, Chemistry, Physical Science, Mathematics)
Minneapolis and St. Paul, Minnesota
Sec (7-12) / B, C, N / 1971-
$200,000 / Various / 242

This program trains secondary school students to teach in regular math and science classes (usually one or two grade levels below their own) in certain inner-city schools in Minneapolis and St. Paul. In this way students are used as role models for other students to influence them toward math and science. This also has the effect of increasing the amount of individualized attention which students receive in regular math and science classes. A major objective of the program is to improve attitudes toward math and science among inner-city youth as a first step towards a longer range goal of increasing minority enrollment in the Institute of Technology of the University of Minnesota.
Dr. Jack Moran, 126 Aero, University of Minnesota, Minneapolis, MN 55455
(612) 373-2165

209 *Physics for Educationally Dis*advantaged Students (Physics)
University of Colorado, Boulder, Colorado
Coll / B, C, N / 1971-
No Extra Cost / / 545 (1971-73)

The course is open to all educationally disadvantaged students interested in taking it. The goals of this special course were to provide the basis for further work in the sciences and to encourage minority students to seek careers in science. The course is offered in the usual format for introductory courses (two one-hour lectures per week and one two-hour recitation per week). The special features of this class include the following: interested faculty who volunteered to participate in the course; a major effort made to reduce the amount of calculational material; a major effort made to choose examples from the student's everyday experience. Lecture notes were provided to the students to allow them to concentrate on the material without the pressure of trying to write it down; a class council was formed which met with the lecturer weekly to discuss the progress of the course. The course has been a success based in part on the performance of the students and in part on the students' attitude towards the course. A large percentage of the students in the course indicated a desire to take further course work in physics. Most indicated that they would recommend the course to their friends. Part of the success has been due to the large amount of effort put in by the teaching staff and part to the fact that their desire to teach the course and belief in its ultimate success has been transmitted to the students, affecting their performance.
Allan Franklin, Assistant Professor, Franz Mohling, Professor, Department of Physics and Astrophysics, University of Colorado, Boulder, CO 80302

210 A *Pilot Program for the Imp*rovement of Higher Technical Education of the American Indian (And Other Technologically Disadvantaged Groups) (Engineering)
Northern Arizona University, Flagstaff, Arizona
Coll / N / 1972-1973
$27,000 / William H. Donner Foundation / 4

The purpose of this program was to increase the number of Native American youth in higher technical studies. The four participants in this pilot program were involved in conferences, interviews and discussions with leading authorities on the education of Native Americans. Critical evaluation of pertinent literature was made. Funding was available for development but not implementation of the program.
Dr. Sandor Popovics, Northern Arizona University, Box 15600, Flagstaff, AZ 86001 (602) 523-5304

211 *Pitt Engineering Impact Program* (Engineering)
University of Pittsburgh, Pittsburgh, Pennsylvania
Sec, Coll / B, P / 1971-
$341,000 / State of Pennsylvania, University of Pittsburgh / 114

The goals of the Pitt Engineering Impact Program (PEI-P) are as follows: (1) to increase the number of minority students and other disadvantaged students enrolled in and graduating from the University of Pittsburgh School of Engineering, to a total of approximately 10% of the undergraduate student body by 1980, and thus obtain a better racially and culturally representative student body; (2) to provide the kind of quality of support services (basically counseling and tutoring) which would enable PEI-P students to perform at their optimal levels and make full use of available resources; (3) to significantly improve the retention rate of minority and other disadvantaged students enrolled in the School of Engineering; and (4) to increase community awareness of engineering as an excellent career for minority and other disadvantaged persons. In order to accomplish these goals, PEI-P concentrates on recruiting, financial-aid packaging, a six-week pre-college summer program, counseling, tutoring, career placement, and institutional awareness activities. The program is reported to be highly successful, one of the outstanding programs of its type.
Dr. Karl H. Lewis, 949 Benedum Engineering Hall, School of Engineering, University of Pittsburgh, Pittsburgh, PA 15261 (412) 624-5378

212 *Plainfield* Science Education Center (Science)
Plainfield, New Jersey
Elem, Sec / All / 1971-
/ State Department of Education, Rutgers, Bell Labs, other industry/

The goals of this program are to give minority students (elementary through high school ages) informal but guided experience in science-related projects at a neighborhood center near their homes. PSEC was established by the State Department of Education in cooperation with Rutgers University and industries. Science projects coordinated by staff and Bell Labs volunteers helped acquaint young students with science. Bell also contributed some equipment with other educational aids.

213 A *Plan for Increasing* the Pool of Junior High School Minority Students Motivated Toward Engineering (Engineering)
Purdue University, Lafayette, Indiana
Sec (8) / B, C, P / 1975-
$51,277 / CIC + MPME, Purdue / 100 students 40 teachers

The target groups were 8th grade teachers and students at 25 schools in 10 cities. Forty junior high school mathematics and science teachers attended a two-day seminar on the Purdue campus in the fall of 1975. Subsequently, they were charged with identifying students with engineering potential and distributing to them special materials produced by Purdue. Members of the Purdue Freshman Engineering staff visited general science and mathematics classes. The forty teachers, accompanied by 100 students they had selected, attended a one-week seminar at Purdue in June 1976. Pre- and post-program measurements will be used for assessment. The proposed program integrates well with on-going Purdue work with high school teachers.
Dr. Harold T. Amrine

214 *Plans for Progress* (Engineering and Sciences)
Bell Laboratories
Sec, Coll / All / 1962-
/ Bell Laboratories /

The goals of this program were to help minorities by extending equal opportunities for hiring and advancement; acquainting students and teachers with Bell Labs; helping disadvantaged high school and college students get a better education. Graduate fellowships were awarded to Polytechnic Institute of Brooklyn for an outstanding engineering graduate from a predominantly Black college; a work/study program for four-year electronics technology students was co-sponsored with Hampton Institute; a scholarship loan fund was established at Union County Institute for qualified students in two-year electronics, drafting design, data processing courses; summer employment has been offered to faculty and students from predominantly Black colleges; BTL participated in career days programs at local high schools and conducted tours of labs for minority student groups.

215 *Pollution Analysis with* Student Participation (Biology, Chemistry)
Benedict College, Columbia, South Carolina
Coll / B / 1974-
$260,000 / NIH (MBS) / 24 (Annual)

The stated goal of this program is to increase minority participation in biomedical research and careers. The program includes the involvement of students in biomedical research and a biomedical seminar. Although currently only in the second year of the grant, there has been an increased number of students entering graduate schools.
Dr. Mary Fleming Finlay, MBS Program Director, Benedict College, Columbia, SC 29204 (803) 779-4930

216 *Porter Physiology* Development Program (Physiology)
American Physiological Society
Coll / All /
/ Harvard Apparatus Co. /

The general purpose of the program is to stimulate and assist in the improvement of underdeveloped American departments of physiology in colleges and medical schools. This objective has been interpreted programatically to include funding for pre-doctoral fellowships; equipment supplied by Harvard Apparatus Company for expanded laboratory teaching of physiology at minority institutions; funding for a cooperative teaching program between Emory University and Spelman College; and funds for visiting professorships in the Department of Physiology, Tuskegee Institute.

217 *Post Baccalaureate Pre-Medical* Programs for Minority Students (Pre-medicine)
Connecticut College, New London, Connecticut
Coll (Post-Baccalaureate) / All / 1971-
$4500 per student (Annual) / Various Foundations /

Students from ethnic minority groups underrepresented in medicine are selected on the basis of undergraduate performance, potential for success and maturity.

Students must have completed one year of inorganic chemistry with good grades prior to entry into the program. Students apply to the program and are chosen by a selection committee. The goal of this program is to help young adult minority college graduates with demonstrated learning skills redirect their career goals to medicine or dentistry. The program provides: a year of academic instruction in the required premedical laboratory sciences in order to remedy gaps in their previous undergraduate pre-professional education; support services, including (1) advice on medical school application procedures, (2) secretarial services related to medical school applications, (3) tutoring assistance, (4) counseling, personal and academic, (5) visits to medical schools, (6) regular conferences on problems of housing, medical school applications, tutoring, etc.; a small stipend plus tuition, books and student fees; and assistance in preparing for the MCAT. Of the 19 students completing the program, 17 are now enrolled in medical or dental school.
Dr. Jewel Plummer Cobb, Dean and Professor of Biology, Douglass College,
Rutgers--The State University of New Jersey, New Brunswick, NJ 08903

218 *Pre-Engineering Program* (Engineering)
University of Illinois at Chicago Circle, Chicago, Illinois
Sec (9-12) / B, P / 1975-
$20,000 / University of Illinois, U.S. Office of Education, Inroads, Inc. / 30

The goal of this program is to develop a science and technology approach in improving academic skills while acquainting students with the sciences. This program provides exposure courses in the areas of engineering and science, field trips to various industries and intensive courses in math, reading and English. Students show a better understanding of the eningeering profession and an increase in academic skills in the areas of mathematics and science.
John W. Long, Director, Project Upward Bound, University of Illinois at Chicago
Circle, Box 4348, Chicago, IL 60680 (312) 996-5045

219 *Pre-Engineering Summer Institute* (Engineering)
Olive-Harvey College, Chicago, Illinois
Sec (10-12) / All / Summer 1975
/ NSF /

The goals of this eight-week summer program were to help minority students strengthen those pre-entrance skills needed for successfully satisfying the academic demands of an engineering program. The program included intensive coursework in mathematics, chemistry, physics and biology; supervised problem laboratory where students attempted to put theory (from coursework) into practice; visits to engineering schools and industrial firms; and seminars by minority engineering consultants to the program.
Mr. George Hansberry, Olive-Harvey College, 10001 So. Woodlawn Avenue,
Chicago, IL 60628

220 *Pre-Engineering Summer Program* (Engineering)
School of Engineering, Tuskegee Institute, Alabama
Coll (13) / B / Summers 1973-1975
$90,000 / AEC, General Electric Foundation / 146

This eight-week summer program for high school graduates was designed to prepare them for freshman engineering courses and provide motivation toward

engineering careers. The program offered lectures, laboratory experience, and tutorials in English, pre-calculus mathematics and an introduction to engineering. Project officers describe it as "probably the most valuable and successful effort we have generated in years". Participants must cost-share and contribute.
Dr. Z. W. Dybczak, Dean, School of Engineering, Tuskegee Institute, Tuskegee Institute, AL 36088 (205) 727-8354

221 *Pre-Forestry* (Forestry, Natural Resources)
Tuskegee Institute, Alabama
Coll (13, 14) / B / 1968-
$60,000 / US Forest Service, Tuskegee, Weyerhauser Company / 100

The purpose of this program is to increase the number of minorities in the natural resources professions, with emphasis on forestry. A two-year college program was established with emphasis on recruitment, summer job placement and cooperation with four-year universities. Course content of the two-year program emphasizes familiarization as well as preparation for the final two-years of bachelor's degree work. The program has been successful. More than half of all Blacks in professional forestry today were recruited and received part of their training in this program.
Bob Lillie, Unit Leader, Milbank Hall, Tuskegee Institute, Tuskegee Institute, AL 36088

222 *Pre-Health Career Development* Program (Pre-Health--Biology, Chemistry)
College of Pharmacy, University of South Carolina, Columbia, South Carolina
Sec (11-12) / B / Summers 1975, 1976
$168,000 / NIH / 150

The primary goals of this program are to improve the background, to increase enrollment and to retain students from minority groups in the health sciences. Students at the end of the junior year of high school were selected on the basis of minority group status, potential, family income, unfortunate conditions in home life, performance in school, aptitude for and attitude toward health professions and similar factors in addition to interest in the program. Participants attended 8-12 week training sessions during the summers following their junior and senior years, and received guidance and counseling during the senior school year. The sessions, held at the University of South Carolina, were designed to enhance their capabilities in basic subject areas (math, English, biology and chemistry). As a motivational tool special lectures and programs representing the major health professions were given. A tutorial program and assistance in applying and gaining acceptance into training programs and obtaining financial aid were provided.
William B. Richardson, College of Pharmacy, University of South Carolina, Columbia, SC 29208 (803) 777-4151

223 *Pre-Health Program* (Biology, Chemistry, Mathematics, Health)
Tougaloo College, Tougaloo, Mississippi
Coll / B, N / 1971-1974
$600,000 / Josiah Macy, Jr. Foundation, OEO, United Negro College Fund / 400

The program of this historically Black college is designed to recruit, identify and prepare students for entry into health professional schools of medicine, dentistry, medical technology and other allied fields, with special emphasis on

practice in Mississippi. The program consists of (1) a summer program for entering freshman college students with academic work in science, math and English; (2) preceptorships for undergraduates with hospitals, private physicians and health centers; (3) counseling for health professional schools and special colleges; (4) financial aid contributed by the college; and (5) test reviews. Science enrollments have doubled and the preparation of students seems to be improving. Between five and ten students per year have entered medical or dental school over the past several years. More are expected to enter starting in 1977.
Richard P. McGinnis, Tougaloo College, Tougaloo, MS 39174 (601) 956-8065

224 *Pre-Health-Science Program* (Pre-Health)
Case Western Reserve University, Cleveland, Ohio
Sec, Coll / B / Summers 1969, 1970
/ Gund Foundation, HEW / 50

This summer program was designed to interest and motivate talented minority students in careers in the health sciences, to prepare them for college courses in science, and to develop and pilot appropriate teaching materials. Open-ended laboratory-based "units", each suitable for 3 to 30 hours of exploration or problem solving were the basis of this project. A number of its alumni have been successful in pre-professional college curricula.
Dr. Morton Slobin and Dr. Rita Welte, Minority Engineers Industrial Opportunity Program, Case Western Reserve University, Cleveland, OH 44106

225 *Pre-Medical Education of Blacks* (Pre-Medicine)
Bethune Cookman College, Daytona Beach, Florida
Coll / B / 1975-
Less than $10,000 / United Negro College Fund / 45

This program is open to all students interested in a career in medicine. The goal of this program is to reduce attrition rate of undergrad students in premedicine. This is accomplished by strengthening the existing programs (such as through the MISIP-funded Science Reinforcement Center), obtaining the necessary materials for the improvement of science courses for this program and increasing student mastery of those courses required for medical school admission.
Dr. Alice May Kenyon, Division of Science and Mathematics, Bethune Cookman College, Daytona Beach, FL 32015

226 *PreMedical Educational Development* (PreMed) Summer Program (Pre-medical)
Xavier University of Louisiana, New Orleans, Louisiana
Coll (13, 14) / B / Summers 1976-
$40,000 (annual) / HEW / 30 (annual)

The participants in this program must be students enrolled at Xavier University, an historically Black college, and be interested in a career in dentistry, medicine, optometry, osteopathy, podiatry or veterinary medicine. The goal of the program is to provide students with the opportunity to acquire those skills which are necessary to be successful in their chosen career field. A self-paced approach involving testing individuals to determine entering levels of performance is used. The students are then assigned a series of tasks which must be mastered and which are designed to alleviate weaknesses. The program operates during the summer for pre-freshmen and pre-sophomores.
Dr. J. W. Carmichael, Jr., Premedical Adviser, Xavier University of Louisiana, New Orleans, LA 70125 (504) 486-7411 X358

227 *Pre-Medical Research and Education* Program (PREP)(Pre-Medical)
New York University Medical Center, New York, New York
Coll / All / 1970-1975
$20,500 / PREP, Brown Univ / 42

The goal of this program was to increase the number of minority students and, ultimately, minority physicians. Participants were self-selected from a group of minority students admitted to Brown. A six-week intensive preparatory program (that included laboratory research, community health internships, counseling, and courses in mathematics, chemistry, and biology) was conducted. The first group of students to participate in this program are now in the first year of medical school.
Allice Miller, Director of PREP, New York University Medical Center School of Medicine, 550 First Avenue, New York, NY 10016 (212) 662-2500.

228 *Pre-professional Health Careers* (PHC) (Health)
Jackson State University, Jackson, Mississippi
Coll / B / 1975-
$33,000 / USOE / 400

The goals of this program at Jackson State, an historically Black institution, are to: (1) identify and recruit individuals with the potential to pursue health careers; (2) provide specific prerequisite training for health careers, and (3) assist in the placement of students in professional and graduate schools. High school students are identified and recruited based upon their performance on the ACT. Special undergraduate courses are offered in the natural sciences and social sciences. Students applying to professional schools receive individualized assistance by the PHC Office. The goals are long-range and continuous. Satisfactory progress has been made. An annual assessment of the program will be conducted by the U.S. Office of Education.
Dr. Robert W. Mack, Jackson State University, Jackson, MS 39217 (601) 968-2136

229 *Pre-Technology* (Industrial Technology)
Jackson State University, Jackson, Mississippi
Coll (13) / B / Summer 1975
$7500 / Jackson State University / 21

The goal of this five-week summer program was to provide enrichment for the selected students and, upon satisfactory completion of the pre-technology program, to matriculate them to the Department of Industrial Technology at this historically Black institution. The students were required to attend enrichment classes in mathematics, physics, computers, and discussions about career opportunities in technology. The program might be more successful with better screening of applicants. Many of the participants, even though well qualified for the program, were not serious about a career in industrial technology.
Dr. Jay T. Smith, Sr., P. O. Box 17417, Jackson State University, Jackson, MS 39217 (601) 968-2466/2467

230 *PRIME* Philadelphia Regional Introduction for Minorities to Engineering (formerly called PIMEG) (Engineering)
Philadelphia, Pennsylvania
Elem, Sec, Coll / All / 1973-
$90,000 per year / Private, NSF, G.E. Foundation, Sloan Foundation, Other / 550+

This program affects some 550 students in the middle and upper schools of Philadelphia, Camden, and Chester. PRIME's main objective is to seek out students with aptitudes for science and mathematics and, through various programs, encourage them toward careers in engineering. In junior high and middle schools (grades seven through nine) the emphasis is on information and motivation; in senior high schools on developing further skills in science and mathematics. In colleges the emphasis is on training as professional engineers. The various PRIME activities - clubs, enrichment activities, special projects, demonstrations, teacher training, innovative curricula, student involvement in engineering work, tours of industries, parent involvement - are all directed toward an achievement of PRIME objectives. These are to:

(1) provide "engineering role models" for minority students;
(2) identify potential engineering students in pre-college years;
(3) develop and provide engineering career information for potential engineering students;
(4) develop ideas for PRIME exhibits;
(5) purvey the understanding that an engineering education serves as a general education for diverse career goals;
(6) coordinate Delaware Valley activities related to services for minority students interested in engineering and serve as a clearing center for scholarship and funding information;
(7) provide exposure for parents and community groups to opportunities in engineering-based careers;
(8) encourage development of industry-supported pre-college programs to stimulate potential engineering students;
(9) develop Delaware Valley engineering needs, estimates, and projections;
(10) assist universities, colleges, community colleges, and school districts in development of curricula leading toward engineering careers;
(11) coordinate efforts among universities, colleges, and schools of engineering with regard to minority engineering student activities;
(12) provide opportunities to use and enhance the total resources of the area for the education of the students involved.

PRIME joins together industries, colleges, universities, community colleges, school districts, professional associations, government agencies, students, and community groups to accomplish its stated objectives.
W. Barry McLaughlin, Executive Director, PRIME, FIRL-Room 107, 20th and Race Streets, Philadelphia, PA 19103

231 *Princeton Para-Technical Program* (Laboratory and Scientific Techniques)
Princeton University, Princeton, New Jersey
Sec, Post-Sec, Coll / B / Summers 1968-1975
$75,000 / Various / 100

Participants were referred by local community agencies and previous participants. The goal of this program was to introduce minority high school students to research and technical occupations at Princeton with the hope that some would pursue careers in these areas. Students worked 10 weeks during the summers in laboratory and shop settings, receiving on-the-job training in technical areas, and counsel from Princeton undergraduates. It was felt that more extensive screening of student participants would have assisted in identifying and developing those with an interest in technical careers.
James H. Barbour, Jr., Office of Personnel Services, Princeton University, Princeton, NJ 08540 (609) 452-3304

232 *Production and Implementation* of Nursing Audio-Visual Instruction in Spanish (Nursing)
Laredo Junior College, Laredo, Texas
Coll (13) / C / 1975-76
$17,410 / Texas Education Association / 70

The participants in this program were freshmen entering the nursing program at Laredo Junior College in September 1975. The goals of the project were: an increase in the number of Mexican-Americans successfully completing the Health Assistant level of the nursing program; an increase in the number of Mexican-American students giving service in local community health agencies; an increase in the level of competency in nursing skills and understanding of nursing concepts at the Health Assistant level; an increase in the level of bilingual competency at the Health Assistant level in giving nursing care to Spanish-speaking patients; and a shift toward internality in the student's locus of control. The present instructional base for the ten-credit course leading to the Health Assistant certificate includes some fifty hours of A-V instruction in English. Methodology involved transcription, translation and recording of these English tapes into Spanish. Behavioral objectives, pre- and post-tests and study guides were developed for each tape. Before the course of study, project participants were pretested on oral comprehension in Spanish, nursing knowledge, locus of control, ACT science, and English scores. In addition to these, post-test instruments will include clinical course grade, theory course grade, total course grade and simulated nurse-patient situations in which the patient is Spanish-speaking. Entering students were randomly divided into two groups; one group received media only in English. The second group received media in both English and Spanish. On a long-range basis, the evaluation procedure will compare the percentage of students passing state licensing examinations for vocational and registered nurses. Evaluation will also seek to determine if a correlation exists between bilingual training and attempts at higher levels of nursing education in the career-ladder program.
Lee West, Laredo Junior College, P. O. 738, Laredo, TX 70040

233 A *Program for Education of Minority* Group Students in Electrical Engineering (Engineering)
Stanford University, Stanford, California
Grad / B, C / 1967-
/ /

Admission to this program is granted to students who have succeeded in demonstrating high technical skill in electronics, usually acquired through work in industry. The students are admitted with the direct objective of obtaining a master's degree; the bachelor's degree is bypassed entirely, even though the students usually have only minimal junior college experience at the time of admission. Financial aspects are handled by an industrial cooperative arrangement with local electronics firms (the firm obligating itself to financial support and release time to attend classes and tutoring sessions). The prospective student is interviewed, as well as his or her technical supervisor at the company; the industry agrees to support the candidate; the candidate is put into classes as an auditor where an academic starting point and his or her aptitude for the theoretical side of engineering can be determined. Candidates who do well in the courses can be fully admitted to the program. There is regular tutoring of the student while auditing courses.
Dr. James F. Gibbons, Stanford Electronics Laboratories, Stanford, CA 94305

234 A *Program for Introducing* Minority Students to the Concept of a Technological Career (Technological Fields)
Notre Dame University, South Bend, Indiana
Sec (7-9) / B / 1975-
$63,804 / CIC+ MPME, Notre Dame / 100 students

The participants were junior high school students and their teachers in three inner-city schools in South Bend, Indiana. The program employs training in computer programming to motivate students toward technological careers. Phase I: Program Study Phase - to survey computer experience in secondary schools and establish liaison. Phase II: pilot program for teachers involving one or two weeks of instruction in computers. Phase III: pilot program for students employing time-sharing terminals placed in schools.
Dr. David L. Cohn

235 *Program for the Improvement* of Undergraduate Research in the Biological Sciences (Biology)
Lincoln University, Jefferson City, Missouri
Coll / B / 1972
/ NIH (MBS) / 16

The goals of this program are to build the research capabilities of the students including research techniques; design of research; the uses of scientific literature; collection, recording, analysis and interpretation of data; reporting findings; and participation in scientific organizations. Students compile their results for presentations at scientific meetings such as the MBS Symposium or Missouri Academy of Science.
Dr. David Finley and Dr. N. H. Cook, Department of Biology, Lincoln University, Jefferson City, MO 65101

236 *Program to Increase Opportunities* in Medical Education for Disadvantaged Citizens (Medicine)
School of Medicine, University of California, Davis, California
Prof / All / 1970-
$11,000 / School of Medicine /

The purpose of this program is to establish role models among disadvantaged students so that they will be motivated to complete medical school and serve in underserved areas.
George H. Lowrey, M. D., Associate Dean, Office of Student Affairs, School of Medicine, University of California, Davis, CA 95616 (916) 752-3170

237 *Project BEEP* - Boise Environmental Education Project (Environmental Education)
Boise Elementary School, Portland, Oregon
Elem / B / 1970-
$450,000 / Ford Foundation / 1,000

The stated goals of this program at Boise Elementary School (with over 95% Black student population) were to implement a curriculum which integrates students and their environment through a total community experience; to offer teachers an opportunity to change the approach to education and problem-solving by utilizing real situations for an instructional base; and to offer parents the opportunity to plan, evaluate and participate in a curriculum. Students, parents and teachers designed learning packets relating to particular interests of students; students were then transported to various business agencies for classroom activities to be instructed by experts in the fields of banking, consumer education, science, law enforcement, local and state government, career education, conservation, etc. Mini-vans served as rolling classrooms for students when traveling to other cities. Learning activities based upon the community as a classroom resulted in the attainment of those skills and attitudes requisite to a positive relationship to the environment; community agencies gained a greater and more effective interest in the local school; many students developed a positive self-image and often commented that they liked school for the first time; parents felt that they were a part of the learning experiences in which their children were involved.
Mrs. Bobbie B. Nunn, Portland Public Schools, 631 NE Clackamas St. - Room 208, Portland, OR 97208 (503) 234-3392 x348

238 *Project Catalyst* (Chemistry)
California State University, Los Angeles, California
Sec (12) / B, C / Summers, 1970-
$15,000 / American Chemical Society / 22

This program, part of the ACS Project Catalyst, was designed to motivate disadvantaged students toward pursuit of a career in the sciences. Students spend 10 weeks working in a chemical research laboratory setting on an independent project. The students work closely with a full-time faculty member in this laboratory-oriented project. The majority of the students in the program over the past six years have gone on to pursue a college degree in either the sciences or health care fields.
Dr. Donald R. Paulson, Associate Professor of Chemistry, California State University, Los Angeles, CA 90032 (213) 224-3149

239 *Project City Science* (Science - Biology, Chemistry, Earth Science, Physics)
Department of Education, New York University, New York, New York
Elem, Sec (6-9) / B, P / 1974-(1979)
$750,000 (1974-1976) $1,000,000 (1976-1979) / NSF / 12 staff, 15 student teachers, 25 in-service teachers

The goal of this program is to improve science teaching in the intermediate urban grades (New York City School System has a predominantly minority student enrollment, mostly Black and Puerto Rican). This program involves a systems approach involving sixteen separate programs directed toward teacher training, research, evaluation, and dissemination.
F. James Rutherford, Director, Project City Science, Press 52, New York University, New York, NY 10003 (212) 598-2131

240 *Project Discovery* and The Discovery Laboratory (Biological and Physical Sciences)
Hall of Science of City of New York, Flushing, New York
Elem, Sec (6-12) / B, P / 1967-
/ Hall of Science / 440

The purpose of this project was a search for science talent in ghettos. Workshops in physical and biological sciences were held twice each per week in the afternoon or on Saturday. One evidence of the project's having accomplished its goal is the development of science fair projects of a more advanced nature.
R. C. Reiley, Hall of Science, Box 1032, Flushing, NY 11352 (212) 699-9400

241 *Project SEED - Project Catalyst* (Chemistry)
Department of Chemistry, Wichita State University, Wichita, Kansas
Sec (12) / / Summer 1975
$500 / American Chemical Society / 1

The goals of this program were: 1) to provide opportunity for disadvantaged students to participate in research activities in colleges or universities; 2) to encourage disadvantaged students to continue their education beyond high school; 3) to give disadvantaged students opportunities for contacts with college students and thus expose them to college life and help clarify many misconceptions about college activities; and 4) to afford the disadvantaged the opportunity of working with and understanding the functions of sophisticated laboratory instruments in scientific research. The student who is selected works with a professor on a research project during the 10 week period of summer. The student is paid a stipend of $500. There is close contact with the student and faculty member, as well as with the student and graduate students in the research group.
Allan M. Nishimura, Department of Chemistry, Wichita State University, Wichita, KS 67208

242 *"Project 75"* Tutorial Program (Pre-Medicine)
Jackson State University, Jackson, Mississippi
Coll / B / 1972-74
$9000 / National Medical Association, Inc. / 80

The goals of this program were to strengthen the backgrounds of pre-medicine majors in the basic sciences, mathematics, English and reading, and to counsel pre-medicine majors about medicine as a career. Tutors were hired for mathematics, chemistry, biology, physics, and English, and weekly reinforcement sessions dealing with subject matter areas were held. Students who were failing pre-medicine courses were salvaged. Inadequately prepared students were counseled out of medicine into other health-related professions.
Dr. John E. Uzodinma, Jackson State University, Jackson, MS 39217

243 *Project Speed* - Special Program for Engineering, Educational Development (Engineering)
Speed Scientific School - University of Louisville, Louisville, Kentucky
Coll / B / 1973-
$70,000 / Various / 58

The purpose of this project is to recruit and retain minority students in the engineering school. The program includes (1) expanded recruiting, (2) academic assessment, (3) academic advising, (4) special development courses, and (5) continued counseling and tutoring.
Donald L. Cole, Director of Professional Development, Speed Scientific School, University of Louisville, Louisville, KY 40208 (502) 636-4841

244 *Project Upward Bound* (Natural Sciences)
Oakland University, Rochester, Michigan
Sec (9-12) / B, C / 1974-
$23,000 / U.S. Office of Education, Oakland University / 14

The purpose of this program is to prepare disadvantaged students (recruited in 9th grade) with potential for academic success in the natural sciences. The program uses university and high school faculty, weekly high school visitations to monitor student progress, classes at the university (twice monthly) designed to generate academic skills necessary for success in college, exposure to curriculum, achievement motivation, and immediate rewards for success, all of which have enhanced the probability of achieving program goals.
Sherman Barton, 124 North Foundation Hall, Oakland University, Rochester, MI 48063

245 *Psychology Graduate Training* for American Indians (Psychology)
Oklahoma State University, Stillwater, Oklahoma
Grad / N / 1976-
/ NIMH /

Students who are members of recognized tribes and who want to work professionally with American Indians are invited to apply to this program. The goal of this program is to increase the number of American Indian professionals in psychology. The Department of Psychology has added new coursework and faculty oriented to American Indian mental health concerns. The new faculty will relate professional psychology practices to contemporary needs and interests of the American Indian community. Financial aid and counseling and support services are available to students in the program. The Psychology Department and the Native American Student Association co-sponsored a special series of seminars on Navajo medicine and mental health to initiate the department's new program.
Coordinator, Psychology Graduate Training for American Indians, North Murray Hall, Room 411, Oklahoma State University, Stillwater, OK 74074

246 *Purdue University* Minority Recruitment (Veterinary Medicine)
Purdue University, West Lafayette, Indiana
Sec, Coll / B, C / 1971
/ Purdue University /

The stated goal of this program is to improve minority recruitment and increase the number of minorities in veterinary medicine. The methodology used toward accomplishing these goals include: sending faculty members on recruitment tours to minority institutions; co-sponsoring programs reaching out to minority students at the high school level; support of programs aimed at identifying educationally disadvantaged youth and providing assistance programs for these in the Purdue environment; and a special program of counseling for minority students in the pre-veterinary medicine program. Efforts are beginning to bear fruit. However, after a great deal of time, effort, and money expended, the results have been minimal.
Billy E. Hooper, DVM, Associate Dean for Academic Affairs, School of Veterinary Medicine, Purdue University, West Lafayette, IN 47907

247 *Racial Justice Program* (Psychology)
Department of Psychology, University of Pittsburgh, Pittsburgh, Pennsylvania
Grad / All / 1968-
$40,000 / University of Pittsburgh / 50

The Racial Justice Committee of the Department of Psychology actively recruits potential graduate students at Black colleges and major universities throughout the East. Candidates for graduate school complete the University application materials which recruiters and the committee distribute. Then the Racial Justice Committee evaluates these completed applications and interviews the most promising candidates on campus. The final selection of candidates occurs jointly between the Racial Justice Committee and other departmental faculty. The aim is to increase the proportion of minority graduate students at Pittsburgh to 30%. Recruiters are sent to eight to ten campuses each year, and recruiting materials are amiled to another 200 campuses. Various forms of aid to enrolled minority students maximizes their probability of success in graduate school. The goal of 30% has not been reached, but a 20-25% minority enrollment has consistently been achieved. Four to five minority students are receiving degrees each year.
Dr. David C. Wood, Department of Psychology, University of Pittsburgh, Pittsburgh, PA 15260 (412) 624-5045

248 *Reading the Environment* (Environmental)
Gadsden Elementary School, Gadsden, South Carolina
Elem / B / 1974-
$300 per year / School and Teacher / 76

The purpose of this program is to develop reading skills and concept development by means of environmental education. A series of outdoor learning exercises in observing, classifying, comparing and generalizing is used to help beginning readers and students who have difficulty reading the printed word. All subject areas are taught by using the environment for a classroom and curriculum materials. The instructor obtained permission to develop the program for a year long self-contained classroom. The program runs all day--six hours daily. The students

are fourth and/or fifth graders at Gadsden Elementary School (with over 95% Black student population) with reading achievement scores of at least two years below grade level. Evaluation of the program has been in terms of students' increased development of perceptual and conceptual acuity as evidenced through expanding forms of expression, both verbal and nonverbal; their enjoyment and increased facility to read the printed page (e.g., one child read one hundred twenty-five books in one year) and their increased independence in managing their own learning.
Ms. Arlen Marturano, Teacher, Gadsden Elementary School, Gadsden, SC 29052

249 *Recruitment, Admissions,* and Retention Program (Medicine)
Temple University Health Sciences Center, Philadelphia, Pennsylvania
Prof / All / 1971-
$455,000 / / 361

The ultimate objective of the RAR program as it was originally proposed is "to enable Temple University School of Medicine to produce significantly greater numbers of physicians from minority backgrounds." Participants in the Recruitment, Admissions, and Retention Program were obtained primarily by actively recruiting minority applicants for medical education at Temple University by establishing a system of early identification and continuous career development services for minority students in the Greater Delaware Valley region. The three program components used to accomplish the goals are: extensive recruiting; increasing minority applicants' admission to Temple University School of Medicine by modifying existing School criteria, policies and structures; and maximizing the personal reinforcement services. Additionally, a seven-week Summer Education Reinforcement Activity for students showing exceptional ability is provided to assess the potential applicant in an academic situation that closely approximates the medical school experience. During the three and half year existence, the three interwoven student service components of the Program - recruitment, admissions, and retention - have extensively augmented existing school services and activities in achieving two major accomplishments. First, the total School enrollment of Black American, Puerto Rican (Mainland), Native American, Oriental American, and Mexican American students is 122, making it the largest such enrollment of all predominantly white medical schools on the East Coast. While the minority student body has increased more than 350% during the academic period 1972 to 1975, the second major accomplishment has been increased minority student retention. The reduction of attrition due to dismissal or voluntary withdrawal dropped from 17% among the entering class of 1971 to 0% among the entering class of 1973. While the above accomplishments highlight what can be done in three years, they merely serve as an incentive in further demonstrating the commitment of Temple University and the effectiveness of its RAR Program to achieve more significant outcomes in the future.
Mr. Charles S. Ireland, Jr., Assistant to the Dean, Director of RAR Program, School of Medicine, Temple University Health Sciences Center, Philadelphia, PA 19140 (215) 221-3595

250 *Recruitment of Disadvantaged Students* (Veterinary Medicine)
University of California, Davis, California
Coll, Prof / All / 1969-
/ /

Special efforts are made at recruitment of disadvantaged students, including a career day. Tutorial programs and preprofessional information program, though not specifically aimed at disadvantaged students augment special recruiting efforts. Practicing veterinarians act as role models, and students are encouraged to contact them for more information. A special brochure aimed specifically at the disadvantaged student is also available.
Timothy R. O'Brien, Associate Dean--Student Services, University of California, Davis, Davis, CA 95616

251 *Remedial Classes in Mathematics* and Elementary Physics (Physics)
Saint Louis University, St. Louis, Missouri
Coll / B /
No extra cost / /

This program for college freshman pre-medical students is designed to raise the level of knowledge for those with poor preparation in mathematics and physics. Participants are selected by pre-test and advised to attend the classes which cover elementary high school mathematics as applied to simple physics problems. Attendance at the remedial sessions was poor; most students eventually drop out of the physics course. Efforts by staff to get students to consider their preparation before enrolling in pre-medical physics have been unsuccessful. Although available to any interested student with poor preparation, a large percentage of participants are Black.
John L. Gammel, Department of Physics, Saint Louis University, 221 North Grand, St. Louis, MO 63103 (314) 535-3300 X451

252 *Research Improvement and Development* Program (Biology, Chemistry)
Elizabeth City State University, Elizabeth City, North Carolina
Coll / B / 1975-
$73,000 (1975-76) / NIH (MBS) / 24

The student participants are selected from the student pool of biology and chemistry majors. They must have at least sophomore standing, and have demonstrated interests in biomedical sciences. The stated goals of this program are to prepare students as researchers and potential employees of health professions; to maximize research capability and research efforts; and to generate research data concerning solutions of major health problems. Students learn laboratory techniques; students involved in the projects receive first hand training and competence in research methodology, involving collection and interpretation of data. Student participants of this program have presented their findings at symposia on local, state and national levels. Some of these participants have entered medical schools after graduation; others have chosen to work in health fields.
Dr. Sekender A. Khan, Director RIAD, Elizabeth City State University, Box 132, Elizabeth City, NC 27909 (919) 335-0551, X357

253 *Research Initiation for Minority* Institution Improvement (Biology)
Elizabeth City State University, Elizabeth City, North Carolina
Coll / B / 1975-
$20,000 / NSF / 3

The project supported research activities for the improvement of faculty at a minority institution, allowed for procurement of equipment and some student involvement in research.
Dr. Sekender A. Khan, Principal Investigator, Elizabeth City State University, Box 132, Elizabeth City, NC 27909 (919) 335-0551 X357

254 *Round Meadow* Outdoor Laboratory School (Environmental)
Catoctin Mountain Park, Thurmont, Maryland
Elem / All / 1973-
$1,200,000 / U.S. Office of Education ESAA / 14,800

This program directed at the District of Columbia public schools (with a predominantly minority student population) was designed to stimulate an appreciation of non-urban environments, to bring about a deeper understanding of environmental problems and at the same time to encourage development of reading and math skills and mutlicultural awareness. Students spend a week at Round Meadow School engaging in varied environmental studies and cultural activities.
Lucille M. Leisner, Project Coordinator, Watkins Elementary School, 12th & E Sts., S.E., Washington, DC 20003 (202) 543-1300

255 *Samuel Gompers* Junior High Enriched Health Science Curriculum (Health Science)
Gompers Junior High School, 1005 47th Street, San Diego, California
Sec (8, 9) / B, C / 1974-
$50,000 / HEW / 230

The purposes of the program are to motivate disadvantaged minority high school students to achieve academically and be good citizens; and to inform and encourage them with respect to post-secondary education and training in health professions and paraprofessions. Fifty students, selected among other factors on the basis of student and parent interest and teacher recommendation, participated in the extracurricular program. These students had individual science study/lab sessions before and after school using semi-programmed single topic materials, viewed presentations by health professionals, educators and social program workers, and visited a number of area health care facilities. Students were paid stipends for meaningful extracurricular activity. Informal counseling of participants by the program coordinator and the instructional aide was a continuing process. The general science course for some 400 students was augmented with health science material and equipment.
Ann Bush, Executive Director, Coordinating Council for Education in Health Sciences, 7610 Girard Avenue, Suites 200-201, La Jolla, CA 92037 (714) 459-2631

256 *Sandia/APS Summer* Science Program (Computer Science, Electronics, Material Science, Physics)
Albuquerque High School and Highland High School, Albuquerque, New Mexico
Sec (9, 10) / B, C / Summers 1974
$3500 (1975) / Sandia, Schools Participating / 48

The purpose of this program was to interest bright students in careers in science and engineering. (The minority populations in the participating schools are quite high, being about 90% in one case and about 30% in the other.) Each year five Sandia staff persons presented five different subject matter areas for two

hours each day for six weeks during the summer school session. Each staff person presented a total of 12 hours. Each student received 1/2 credit. It is difficult to tell if students eventually enter careers in science as a result of the program - they may have selected science careers regardless of the program.
Wayne H. Trump, Orgn. 4231, Sandia Laboratories, Albuquerque, NM 87115
(505)264-6455

257 *Sandia Laboratories Work/Study* Program for the Disadvantaged (Engineering, Physical Sciences)
Sandia Laboratories, Albuquerque, New Mexico, and Livermore, California
Coll / C / 1974-
$45,000 (1975-76) / Sandia / 23

The program is basically intended to provide the opportunity for minorities from disadvantaged backgrounds or circumstances to enter into engineering and science professions. Anglos are also eligible for the program. Nomination of participants are requested from high school principals. Final selection is based upon financial need, ACT/SAT scores, GPA's, and the discipline pursued. The program provides the opportunity, through financial assistance and summer employment at Sandia Labs, for qualified, financially disadvantaged high school graduates to pursue a college level professional education in engineering or one of the physical sciences. Selected students are financially sponsored (tuition, fees, books, living expenses during academic year, and summer employment) during their undergraduate pursuit of a baccalaureate degree.
Ms. Mary T. Quigley, Orgn. 4231, Sandia Laboratories, Albuquerque, NM 87115
(505) 264-7361

258 *Sandia/T-VI* Drafting Program (Electromechanical and Construction Drafting)
Sandia Laboratories, Albuquerque, and Albuquerque Technical-Vocational Institute, Albuquerque, New Mexico
Post-Sec / B, C, N / 1974-
$41,000 / Various / 44

This 45-week program for post-secondary, financially disadvantaged, unemployed or underemployed persons provides training for drafting positions. The first trimester is classroom instruction exclusively, the second, a combination of on-the-job training and classwork and the final 15 weeks, on-the-job training full-time. Participants receive stipends.
Wayne H. Trump, Org. 4231, Sandia Laboratories, Albuquerque, NM 87115
(505) 264-6455

259 *Savannah River Plant Pre-Co-Op* Program in Engineering (Engineering)
Savannah River Plant, Aiken, South Carolina
Coll / B / 1970-
$40,000 / AEC, ERDA / 18

The goal of the project was to increase the numbers and quality of minority students in engineering college programs. Selected students accepted for admission into engineering curricula at three predominanatly Black engineering programs are offered: 1) summer employment prior to college entry; 2) freshman year tuition, fees and books through support to the school; and 3) placement in the cooperative education work program through the school's co-op office

after the freshman year (continuing summer employment in the case of the Atlanta University Dual Degree Program). Of the participants to date, at least half were attracted to engineering through this program. Retention rates have been high compared to engineering freshmen generally.
J. W. Morris, Director, Professional and University Relations, Savannah River Laboratory, E. I. du Pont de Nemours & Co., Aiken, SC 29801
(803) 824-6331 x2821

260 *Savannah River Plant Progressive* Summer Employment Program (Physical Sciences, Mathematics)
Coll / B / Summers 1970-
/ AEC, ERDA / 10

The goal of this program is to increase career opportunities in practical scientific areas for students in appropriate majors from nearby predominantly Black schools not having cooperative education programs. Selected freshmen are offered summer work opportunities on a continuing basis through their BS degree programs. The participating students have gained practical, useful experience, thus becoming much more attractive to employers or to graduate schools.
J.W. Morris, Director, Professional and University Relations, Savannah River Laboratory, E. I. du Pont de Nemours & Co., Aiken, SC 29801 (803) 824-6331 x2821

261 A *School System Project for Weld* County, Colorado, To Train Alternative Instructors in Science Curricula (Science Education)
Brentwood Middle School, Greeley, Colorado
Elem / C / 1975-
$36,000 / NSF / 58

The goals of this program were to compile activities for science at stated grade levels, to obtain Spanish translation of activities, vocabulary, etc., if desired, and to offer in-service courses to colleagues covering activities compiled and translated. Participants used a variety of resources (nationally-known elementary science programs, printed materials, audio-visual resources, field trips, etc.) in compiling graded science activities. A retired Spanish professor was hired to assist in obtaining Spanish materials and in translating participants' materials. Several workshops were planned to implement activities in participating schools.
Mrs. Jean P. Krause, Elementary Science Coordinator, Weld County School District #6, 811 Fifteenth Street, Greeley, CO 80631 (303) 352-1543 x40 and
Dr. John D. Hunt, Science Education Department, University of Northern Colorado, Greeley, CO 80639 (303) 351-2449

262 *Science and Engineering Motivation* Program (Engineering, Veterinary Medicine, Biomedicine, Forestry, Agriculture)
Colorado State University, Fort Collins, Colorado
Sec / B, C / Summers 1974, 1975
$23,000 / Colorado State University / 30

This summer (4-6 week) program was designed to encourage minority students to consider careers in science and engineering. The 12-18 high school students were chosen on the basis of interviews and employed as research assistants to university faculty. The participants, housed in the college dormitories, participated in active research projects in their interest areas, heard lectures by research scientists, visited laboratories in the area, and enjoyed college social functions on weekends.
Dr. George C. Hill, Assistant Professor, Pathology Department, Colorado State University, Fort Collins, CO 80523 (303) 491-7086 or 6634

263 *Science and Industry Program* (Engineering and Science)
Newark, New Jersey
Sec / All / 1973-
/ Bell Labs /

The goals of this program are to attract more minorities and females into engineering and science and to provide students the opportunity to learn more about industrial science and engineering with instructors from the world of work. This was a six-week summer program offered to selected minority students of a Newark high school. Bell Labs provided instructors, equipment, and developed curriculum in cooperation with the head of the school's science department. Classes met two hours each day at the high school.

264 *Science and Mathematics Career* Day (Biology, Chemistry, Physics, Health Fields, Mathematics)
University of Massachusetts, Boston, Massachusetts
Sec (10, 11) / B, P / April 30, 1975
$2,500 / University of Massachusetts, Boston / 150

The purpose of this program was to motivate and encourage students, particularly minorities and women, to consider careers in science and mathematics. This program made use of laboratory demonstration sessions, career workshops, and women and minority role models (academic and non-academic professionals). The Career Day was envisioned as a first step to an ongoing relationship between the University of Massachusetts, Boston, science and math departments, and teachers and students from Boston high schools.
Dr. Evelyn Picon Garfield, University of Massachusetts, Boston, MA 02125

265 *Science and Technology* (Chemistry, Physics, Mathematics)
State University of New York, College at Old Westbury, New York
Coll (13) / All / 1971-
No extra cost / / 250

This program at Old Westbury is designed to address the needs of the general student population which is predominantly minority. The goal is to demystify science; to remove the myths and elitist approach to science. The program consisted of self-pacing, individual instruction in chemistry; modular approach to physics; lab-based calculus. Those students who did not procrastinate moved rapidly through the courses.
Dr. Samuel von Winbush, 223 Store Hill Road, Old Westbury, NY 11568 (516) 876-3127

266 *Science Awareness: National* Demonstration (SAND) (Biological Science, Chemistry, Mathematics)
Southern Illinois University-Edwardsville, Illinois; East St. Louis Senior High School, East St. Louis, Illinois
Sec / B / 1975-
$200,000 / HEW /

The goals of this program are to acquaint minority students (E. St. Louis Senior High has a 95% Black student population) with the sciences and to assist in preparing college bound students by providing extra sections and additional courses in the sciences and the communicative skills. Students are given appropriate diagnostic tests to determine their academic achievement to date. Some ability grouping is utilized in class scheduling. Tests are administered at the end of the academic period to measure progress. Classes utilize a combination of lecture, workshop-laboratory, and individualized instruction. The old schoolroom approach and the laboratory approach are utilized.
Dr. Emil Jason, Office of the Vice President & Provost, Box 21, Southern Illinois University, Edwardsville, IL 62025 (618) 692-2333

267 *Science Career Awareness Project* (Science Counseling)
Michigan State University, East Lansing, Michigan
Sec (9, 10) / B, C / 1974-1976
$50,000 / NSF / 2500

Participants were obtained through the school districts and principals selected to be part of the project. The goals projected consisted of producing a slide-tape show, a 15 minute movie, a series of T.V. commercials and a conference for high school counselors and then the measure of motivational effects they might have on high schools by giving tests prior to and after the treatments were administered.
Dr. Sherwood Haynes, Project Officer, Charles Thornton, Coordinator, Science Career Awareness Project, Physics Department, Michigan State University, East Lansing, MI 48824

268 *Science Education Program* (General Science, Health)
Washington State University, Pullman, Washington
Coll (15, 16) / B, C, N / 1974-
$230,000 / HEW, Corporations / 70

The goal of this program is to academically assist educationally, culturally, and economically disadvantaged students who are interested in science careers. There are two components - health care-related and general science. Each is designed to prepare the student for advanced study in a science discipline. The most important support service offered by SEP is the tutorial program. The tutorial staff is composed of junior, senior, and graduate students selected on the basis of interest and demonstrated ability to assist students in given sciences courses. A significant aspect of the program is providing summer placement for program students. Students are placed with agencies (corporations, clinics, hospitals, etc.) that reflect their indicated career choices; stipend monies significantly reduce the amount of money students will have to pay back upon graduation. Other supportive services are of a general university nature

and consist of counseling, advising, and assisting students in securing financial aid.
Mack Johnson, D.V.M., Ph.D., College of Veterinary Medicine, Washington State University, Pullman, WA 99163 (509) 335-2608

269 *Science Enrichment Program* (Biology, Chemistry, Mathematics)
Chicago State University, Chicago, Illinois
Sec, Coll 11-13 / B / Summer 1973
$30,000 / Chicago Model Cities / 50

This summer program for 11th and 12th grade students was intended to provide the students with special science experiences in and outside of the classroom and to stimulate special interest in the sciences. Special laboratory experiments and field trips were set up in addition to providing the students with special tutors. The project accomplished its goal only in part. Although the students did not generally react to the total program with enthusiasm, the portions on biology and certain field trips were very favorably received.
Elmer L. Washington, Chicago State University, 95th and King Drive, Chicago, IL 60628 (312) 995-2407

270 *Science Enrichment Program for Cul*turally Disadvantaged Children (General Science)
Oregon Museum of Science and Industry, Portland, Oregon
Elem (1-6) / B / 1967-70
$21,000 / Louis W. and Maude Hill Family Foundation / 4822

Loren McKinley, Executive Director, OMSI, 4015 S.W. Canyon Road, Portland, OR (503) 248-5900

271 *Science Exploration* (Biology, Chemistry, Geology, Physics)
University Library, Bowling Green State University, Bowling Green, Ohio
Coll (13) / B, C / Summer 1974
$1000 / HEW / 12

The purpose of this program was to provide an understanding of the scientific method and scientific concepts cross-cutting a variety of disciplines. Participants were recruited from the Upward Bound Program and Student Development Program on the basis of expressed interest in a science curriculum or major. On the basis of evaluations from both students and instructors both groups were satisfied that course goals had been met.
Dr. John F. Newby, Director, Developmental Education Program, 204 Library, Bowling Green State University, Bowling Green, OH 43403 (419) 372-2677

272 *Science Improvement-Experimental Biology* Program (SIEBP) (Biology)
Fayetteville State University, Fayetteville, North Carolina
Coll / B / 1972-
$212,000 / HEW / 432

The goals were to facilitiate increased student learning in biology at predominantly Black Fayetteville State and to promote general improvement in science at the University. Multi-faceted instructional methodology,

including extensive use of a variety of audio-visual aids, lectures, discussions, and enrichment procedures were implemented for a random sample of college biology students.
Dr. J. L. Knuckles, Fayetteville State University, Fayetteville, NC 28301
(919) 483-6144 x343, 347

273 *Science Involvement* in the Inner City (Environmental Sciences)
California State University, Los Angeles, California
Sec / B, C / 1972-
/ ESAA, Environmental Educ Act /

The purpose of this program is to acquaint minority high school students with environmental education and to introduce them to careers in the environmental sciences. Scholarships are provided to high school students to attend a major three-day conference on environmental education. The Outward Bound Adventures program prepares youth for careers in environmental education.
Dr. Alan Crawford, Elementary Education Department, California State University/ Los Angeles, Los Angeles, CA 90032

274 *Science on a Shoestring* (formerly, Student Centered Science Program) (General Science)
San Francisco and Bay Area, California
Elem (K-7) / B, C / 1969-
$125,000+/S.F. Unified School District, Some Federal Funds / 20,000

The purpose of this program was to ensure that science would be included in the elementary curriculum for all students in Bay area schools (over 70% minority student population in S.F. public schools). The program consists of "hands on" student investigations that require low cost, commonly available materials found in local supermarkets. The guide is written for a teacher with little science background. It is in the form of a TV script - it tells what to say, to ask, to look for, and the answers. ("Sounds like a crazy way to teach kids, but teachers overwhelmingly requested this format," H. Strongin). Investigations are short - 30-45 minutes. This fits in with the needs of many youngsters with short attention spans. Over 400 San Francisco teachers volunteered to enroll in this program. Two hundred were on a waiting list when the program was discontinued. A research paper done on the program stated that over 90% of teachers taught science in their class using this "hands-on" approach (40% used science primarily by text and newspaper prior to this class).
Herb Strongin, San Francisco Unified School District, 844 Folsom, San Francisco, CA 94107 (415) 986-1575

275 *"Science Playhouse"* Series (Science, Technology)
Museum of Science and Industry in Chicago, Illinois
Elem, Sec / All / November 1972-May 1973
$37,000 / NSF / 29,000

The intent of this project was to make use of theatrical techniques in teaching youngsters about science and technology. A series of four plays dealing with science were presented free for 10 days each in the Museum's auditorium. The plays dealt with Galileo, Thomas Edison, Daniel Hale Williams (a Black surgeon), and the nature of scientific inquiry. Follow-up studies showed that both students and teachers enjoyed the plays and learned something about science and technology. Around twenty-nine thousand school children, mostly from the inner-city, participated by invitation. (Chicago public schools are predominantly minority.)
Dr. Victor J. Danilov, Director, Museum of Science and Industry, 57th Street and Lake Shore Drive, Chicago, IL 60637 (312) 684-1414

276 *SCoRMEBE* (Engineering)
University of Kansas, Lawrence, Kansas
Coll / All / 1971-
$176,000 / Various / 173

The purpose of this program is to acquaint minority student with opportunities in the field of engineering and to increase minority participation in engineering careers. Besides the mutual support which students provide each other, the program includes various outreach efforts including: (1) a pilot program with high schools to study retention and motivation techniques; (2) university programs to increase Native American participation with Haskell Indian Institute; and (3) a regional symposium to encourage more industrial, university, and student participation. A summer program is also a part of SCoRMEBE. The summer program consists of several major components: enrichment courses, tutoring, counseling, field trips to industries, faculty presentations, and social activities. Minority enrollment in engineering has greatly increased since the initiation of the program and the retention rates have been quite high (between 70 and 90 percent).
Dr. W. E. Hogan II, Associate Dean of Engineering, University of Kansas, Lawrence, KS 66045 (913) 864-3541

277 *Secondary School Project* in Minority Education (Health Sciences)
Secondary School District Counseling Office, Spring Garden Street, and
Temple University College of Allied Health Professions and Philadelphia
Center for Health Careers, Philadelphia, Pennsylvania
Sec / B / 1973-
$12,000 per year / Romas - Haas Foundation / 450

The project was written to direct attention to two predominantly minority group high schools in the Philadelphia system (Overbrook and Gratz), and participants were obtained by publicizing the program in these two high schools. The program goals are that of an intensive introduction and in-person experience in allied health disciplines for interested minority students. A second, but equally important, goal was the development of a specialized secondary school science curriculum for those individuals who are interested in allied health and which would aid them when they become academically involved in allied health subjects. It is the opinion of staff that the project has more than established its goals, even though it is only in its third year, and that the last two years will see a crystallizing of the project goals into successful accomplishments. More and more students in the minority groups are beginning to find allied health an interesting and exciting area of professional endeavor and are beginning to see that there is something more to the health care picture than being a physician, a nurse, a dentist, or a pharmacist. In short, allied health has been "opened up" to the vision and the acceptance of these minority students.
Dr. Frank L. Husted, Dean, College of Allied Health, Temple University,
3307 North Broad Street, Philadelphia, PA 19140

278 *Sheldon Jackson* College *Aquaculture* Program (Aquaculture, Biology, Fisheries)
Sheldon Jackson College Campus, Sitka, Alaska
Coll (13, 14) / N / 1975-
$138,000 / Northwest Area Foundation / 15

This program includes a student training facility for salmon ranching which also serves as demonstration model for an economic feasibility study of salmon aquaculture. The objectives are: to promote Native Alaskan education; that is, to provide an educational career ladder for Indians, Aleuts, and Eskimos so that what they learn can be transferred to a meaningful and rewarding life experience; to improve salmon fishing, that is, to establish a private salmon hatchery to produce fish for the common property fisheries and to demonstrate the feasibility of salmon ranching as a source of self-sustaining funds for the program; to promote cooperation between public and private organizations involved in the orderly development of salmon ranching; and to provide technical advice and assistance to various Native and non-Native entrepreneurs who will be closely following the results of this program. Job placement is provided.
Mel Siefert, Director, Aquaculture Program, Box 479, Sitka, AK 99835
(907) 747-5238

279 *Sheldon Jackson College* Teacher Aide/Teacher Education Program (Science Education)
Fifteen communities throughout Southeast Alaska
Coll / N / 1971-
$641,000 / Various / 415

The objective of the program is to provide higher education and training for teacher aides in elementary schools throughout Southeast Alaska; to provide an Associate Degree in Education to continuing students; and, as a long-range goal, to improve the educational potentials for Native children in Southeast Alaskan schools. Most of the students are teacher aides working in the school systems. College courses in the area of education as well as other training have been delivered through personalized visits by college instructors to the remote island communities in SE Alaska. These courses were synchronized to respond specifically to the needs of the students, most of whom work as TA's, education teachers, or bilingual teachers. College credit has also been given for the on-the-job work experience which students receive in the classroom working with elementary-age children. The project accomplished the desired goals of providing associate-level education and training for teacher aides very specifically geared toward elementary education, which will be useful to them in their work. Secondly, the project has been expanded to the longer-range goal of providing access to a field-based Bachelor degree in elementary education to highly-motivated students. Thus, the long-range goal of improving the educational environment for children is being met, not only by TA's who are trained and educated to more competently perform their work, but also by local Native teachers who are put into the school systems as certified teachers. Utilizing locally-trained teachers accomplishes two goals: 1) it lessens the massive turn-over of teachers from outside (the lower 48) who are unequipped to cope with village life or the cultural heritage and educational needs of the children; 2) the local Native teachers give the children a model to emulate and the kind of understanding and pride in their own heritage which they need to compete in the educational arena. The Teacher Aide Program has been responding to the need to provide community-based training and education for TA's and other interested individuals in the area of education throughout Southeast Alaska. As all transportation between communities must be made by boat or plane, costs are high, and it is difficult to adequately service clientele. The use of a personalized delivery system where instructors fly out to the students has provided the type of college education that was denied to them by the fact that most of the students are parents and long-term members of the community who hold jobs and would be unable to come to a campus to obtain higher education. Greater communication would be a number one goal. Program continuity could be insured by more advanced program planning, which has been difficult to achieve due to drastic fluctuations in funding sources as federal programs come and go. Programs are being changed to a more locally-based funding situation to insure greater stability and continuity of staff and services to students. In program expansion to the baccalaureate level, there are major expansions to be accomplished in the areas of science and math, and an attempt is being made to better integrate these important subject matter areas into the total curriculum. Staff of this program would appreciate input.
Marlene A. Lund, Director, Teacher Education Program, SJC, Box 479, Sitka, AK 99835 (907) 747-5263/3407

280 *Sickle Cell Exhibit* (Science Education)
Museum of Science and Industry in Chicago, Illinois
All / B / 1975-
$100,000 / National Heart and Lung Institute / 1,000,000

The purpose of this program is to make the public - and especially Blacks - more familiar with the nature of sickle cell anemia, a blood disorder that primarily affects Blacks. A permanent 1,000-square-foot exhibit on the causes, characteristics, treatment, and study of sickle cell anemia was produced. In addition, a booklet on the subject was published for dissemination to Museum visitors and other interested parties. The exhibit has been warmly received by both the Black and White communities. It is an excellent informational exhibit, with a mixture of popular and technical material. It is especially popular with inner-city school groups.
Dr. James E. Bowman, Director, Comprehensive Sickle Cell Center, University of Chicago, 950 East 49th Street, Chicago, IL 60637 (312) 947-5501

281 *Sixteen Black Institutions* Health Sciences Consortium (Health Sciences)
(16 Black Institutions in North Carolina and Virginia)
Bennett College, Greensboro, North Carolina
Coll / B / 1974-
$197,000 / HEW /

The stated goal of this program is to increase the participation of Blacks in health fields. Program activities include recruiting students for health sciences, counseling, distribution of brochure materials, arranging health careers symposia, conducting workshops for health counselors, advisors, etc. The students are kept informed of the advances in health sciences through direct counseling, flyers, etc. The students' interest in health sciences have increased tremendously.
Dr. J. Henry Sayles, Director of Health Sciences Consortium, P.O. Box 21625, Greensboro, NC 27420 (919) 274-5726

282 *Southeastern* Oklahoma *State University* Biomedical Sciences Program
(Biology, Chemistry, Biomedical Fields)
Southeastern Oklahoma State University, Durant, Oklahoma
Coll / B, C, N / 1972
$440,000 / NIH (MBS) / 57

The participants for this program are obtained through recruitment at high schools and junior colleges, and by sending letters and brochures to prospective students identified through A.C.T. scores sent to S.O.S.U. The goal of this program is to increase the minority representation and opportunities for research participation in the biomedical sciences. Students in the program participate in five research projects that are a part of the program. Student participation is for 40 hours per week during a ten week summer program and 15 hours per week during the academic year. In addition, the students attend seminars, scientific meetings, and make visits to graduate/professional institutions. Student research participation involves study of scientific literature, experimentation, and presentation of their results. The project is in the process of increasing minority scientific manpower. Nine students are currently in graduate/professional school, and others will follow in the next few years. One of the bonuses of the program is that high school level American Indian students are becoming more aware of the possibility of careers in science.
Jack L. Robinson, Ph.D., Physical Science Department, Southeastern Oklahoma State University, Durant, OK 74701

283 *Spanish Speaking Tours* (Science)
The Science Museum of Minnesota, St. Paul, Minnesota
Elem, Sec / C /
/ Sci. Museum of Minnesota /

Spanish-speaking tours of the Museum are provided free to all schools and especially to those with heavy Chicano population.
Ms. Karla McGray, Administrative Assistant, Education Department, The Science Museum of Minnesota, St. Paul, MN 55101

284 *Special Freshman Engineering* Program/Special Freshman Orientation Program
Princeton University, Princeton, New Jersey
Coll (13) / All / Summers 1969-
$110,000 / State of New Jersey, Princeton / 287

Students in the initial program were selected because they did not fit the profile of the "traditional" Princeton student. This was the first class admitted to the University which reflected its affirmative action plan. They were engineering students and primarily minority students. This program was undertaken so that students would gain a working understanding of the basic concepts taught in math, physics, and chemistry courses required of all engineering freshmen; faculty would introduce the concepts and academic tools the students would need for the courses mentioned; and the faculty could determine what curriculum changes, if any, should be made for these students to successfully complete BSE requirements. Classes were held in the morning. Afternoons and evenings were given to individual conferences. Students were taught by Princeton faculty and aided in their adjustment to the university campus by junior and senior students. As an experiment (as it was intended) the first program met its goals. After the initial program, faculty attempted to do remedial coursework with students. The feeling was that two weeks was too short a period to homogenize the varied secondary preparation of incoming freshmen. On the other hand, engineering faculty felt that a longer program would not benefit most students. Besides, there was the "fatigue factor" to be considered, since the program immediately preceded the academic year. The science portion of the program was carried forward into future programs, but most of the students enrolled are pre-med. Engineer involvement was reduced and other majors included.
Professor Seymour Bogdonoff, D214 Engineering Quad., Princeton, NJ 08540
(609) 452-5125

285 *"Special Health Career Opportunity Grant"* - Minority Retention in Allied Health Programs (Health)
El Centro College, Dallas, Texas
Coll (13, 14) / B, C, N / 1975-
$63,000 / HEW / 30

The participants of this program are minority students who have met requirements for admission into an Allied Health Program and who are experiencing difficulties in learning. Its purpose is to retain minority students in Allied Health Programs. The methodology proposed to be used are alternate learning methods: tutorial guidance, packages, mastery-based learning materials.
Mary G. Watts, El Centro College, Main and Lamar, Dallas, TX 75202 (214) 746-2369

286 *Special Health Career/Opportunity Program* (Health)
Department of Biology, Livingston College-Rutgers University, New Brunswick, New Jersey
Coll / B, P / 3 years duration
$339,000 / HEW / 160

The program was designed to provide educationally disadvantaged students in the area of biology an opportunity to perceive health professions as diverse fields, offering opportunities for employment and intellectual reward. In addition, the program was designed to prepare students with a basic background for college level biology and chemistry courses. Students who were deficient as a result of a poor high school background but demonstrated an interest in pursuing a career in the medical professions were chosen for this project. After careful screening of the participants, those students who were identified as having unusual weaknesses in biology and chemistry were offered an opportunity to participate in a four-week preparatory course in those areas. However, other participants were given an opportunity to participate in a ten-week summer internship program conducted in community health centers, Rutgers Medical School, and other area hospitals and medical schools. Some of the desired goals were accomplished by implementing internships in health care centers, medical schools, visiting scientists programs, and traveling to innovative program sites and health conferences. In addition, a rather structured ongoing tutorial program was provided in areas such as biology, chemistry, and mathematics. During the academic year, some students were given an opportunity to conduct independent research which allowed the student an opportunity to work independently in the laboratory while utilizing sophisticated scientific methods and materials. Such an opportunity provided the student with advanced lab experience normally not available at this stage of his or her collegiate program in biology. The Visiting Scientists Program provided for informal and informative discussions concerning opportunities in the field of medicine, dentistry, and veterinary medicine. The conference offered students an opportunity to exchange ideas with other students and professionals on new access routes to the various health careers and to meet with other students from various universities with similar interests in the health professions.
Vernon G. Archer, Ph.D., Biology Department, Livingston College, Rutgers University, New Brunswick, NJ (201) 932-3182

287 *Strengthening of* Pre-Health Advisory Service (Health Sciences)
Jackson State University, Jackson, Mississippi
Coll / B / 1971-1974
$25,500 / Josiah Macy Jr. Foundation / 200

Participants in this program were members of the Pre-Health Society. The goals of this program were to strengthen the Pre-Health Professional Advisory Program at Jackson State University and to increase the pool of pre-health majors. Activities of this program included preparation and distribution of brochures about the program, recruitment of students from high schools and junior colleges, the establishment of a pre-professional library and a faculty advisory committee. An increasing number of high school graduates are now attending Jackson State in pre-health programs and the project enabled the University to establish a permanent Pre-Health Advisory Program.
Dr. John E. Uzodinma, Jackson State University, Jackson, MS 39217

288 *Student Recruitment* for Minorities and Disadvantaged (Veterinary Medicine)
Iowa State University, Ames, Iowa
Coll, Prof / All / 1970-
/ Iowa State /

The stated goal of this effort was to identify as early as possible those minorities who could benefit from post-high school study. Special efforts have been made in the communities of Iowa, where the number of minorities warrant particular emphasis. As soon as these students were identified, a tentative financial commitment was made to them. Iowa State University entered into an informal pilot program with four area schools: Des Moines, Area 11; Iowa Central, Area 5; North Iowa, Area 2; Marshalltown Campus, Area 6. Students who were contacted by these schools and who had the ability but limited resources were encouraged to attempt the kind of program commensurate with their ability and interest. If their financial resources were such that they could not see their way clear to proceed with such a course, the area school and Iowa State University made commitments jointly to the student. This was done after a review of the students' financial situation by means of the parents' confidential statement. The project has been successful to this time, but it is hoped that the percent of minority and disadvantaged students can be increased in the future.
P. T. Pearson, Dean, College of Veterinary Medicine, Iowa State University, Ames, IA 50010 (515) 294-1250

289 *Student Support Program* (Summer Bridge Program) (Science)
California Institute of Technology, Pasadena, California
Coll (13) / All /
$10,000 per year / Calif Inst. of Tech /

Minority group students who have been admitted to Caltech as freshmen and who are slightly below the average of typical Caltech admittees participate in this program. The special bridge program is designed to update the academic backgrounds of Student Support Program participants. Students are involved in a six-week program in the summer between high school and their freshman year at Caltech.
Lee F. Browne, Director, Secondary School Relations,California Institute of Technology, Pasadena, CA 91125

290 *Students for Dentistry Program* (Pre-Dentistry, Dentistry)
New Jersey Dental School, Newark, New Jersey
Coll, Prof / All / 1973-
/ /

The goals of this program are to establish a pool of qualified minority students and recruit an increased number of such students to the New Jersey Dental School, while providing an appropriate academic program and a supportive environment, so that these students will complete the DMD program. Students receive instruction in three areas: 1) learning skills (note taking, examination skills, library skills, etc.); 2) basic sciences (chemistry, biology, physics); and 3) preclinical dental sciences (development of psychomotor skills, etc.). (See also separate listing under Dental Schools.)
Mr. Allison G. Dildy, New Jersey Dental School, Room B-824, 100 Bergen Street, Newark, NJ 07103

291 *Study Related to Admission*, Counseling, Program Planning and Instruction
of Minority Students Who Have Indicated An Interest in Nursing (Nursing)
School of Nursing, Michigan State University, East Lansing, Michigan
Coll / All / 1972-
$319,000 / Public Health Service / 223

All minority students who indicate an interest in pursuing a baccalaureate degree in nursing at MSU are accepted as project students. Recruitment strategies include: (1) radio advertisement; (2) distribution of brochures explaining the curriculum of the School of Nursing and the project's goals and services to high school and college students, counselors, and teachers at career days and open houses; (3) distribution of newsletters to high school, junior college, and college counselors in Michigan; (4) encouragement of active recruitment by the MSU Extension Service, Center for Supportive Services and the Admissions Office; (5) encouragement of referrals from MSU University College academic advisors, the student Black Aid and Chicano Aid dormitory programs, and minority counselors associated with COM, CHM, and the College of Natural Science; (6) recruitment at the MSU Summer Orientation Program by a minority School of Nursing faculty member; (7) presentation of a slide-tape unit describing the project's goals and supportive services; (8) encouragement and aid to the Michigan Student Nurse Association in proposing Lansing and the Greater Detroit Area as a target area for "Breakthrough," a student nurse volunteer recruitment project for minority persons; (9) publication of short articles about individual minority student nurses in the students' home newspapers; (10) publication of general information about the project in both campus and daily newspapers; (11) organizing evening meetings among minority pre-nursing students and minority student nurses; and (12) word of mouth.

The overall goal of the project is to maximize the opportunity for minority student success by using supportive services in the School of Nursing and the University generally in conjunction with the regular program in nursing. The supportive services include special counseling, program planning and tutoring, as well as special programs and facilities available in the Michigan State University supportive services and the Learning Resources Center. This approach to working with the minority student in the professional nurse curriculum allows flexibility in meeting graduation requirements and provides for a comprehensive program and general assistance in all levels of the nursing curriculum. Project students are admitted to the School of Nursing on an individual basis; however, each student must successfully complete all pre-nursing requirements and meet minimum standards for admission. The project staff, composed of a nurse director, nurse educators, and graduate student tutors, implement a multifaceted program that includes recruitment, academic advising, counseling, tutoring, cooperation among individuals and departments important to minority student success, and evaluation. When university placement scores are very low, pre-nursing students are advised to spend two years instead of one in pre-nursing work and to use tutorial help intensively. Project students in sophomore level nursing courses are offered intensive tutorial and counseling support, including help in clinical nursing courses. Project students in junior and senior level courses are offered supportive services as needed.

Had the project not been udnertaken, very few minority students would now be encouraged to apply, and competition for admissions would have eliminated most minority students. Without the project few minority students would now be studying nursing at MSU. Before the project, minority students comprised approximately three percent of the student nurse enrollment at MSU. Presently, minority students constitute approximately 13 percent of the total School of Nursing enrollment. (These percentages exclude pre-nursing students.)

By continuing flexible curriculum programs and admitting well prepared minority students with good academic records, and by continuing the supportive program in nursing, project goals will continue to be realized.
Joy Curtis, A-230 Life Sciences, Michigan State University School of Nursing, East Lansing, MI 48824

292 *Summer Career Program, Mont*efiore Hospital (Health Careers)
Bronx, New York
Sec / B, P / Summers 1968-
$224,000 / CETA / 670

Participants are obtained by referral from Tremont Youth Corps and Morrisania Youth Corps. The goals of this program are: (1) to provide summer jobs and an income for students; (2) to provide varied training in hospital work; and (3) to expose students to career possibilities in the health fields. Students are placed in areas of interest to them, and they can learn on-the-job. They attend seminars and lectures and visit other departments of the hospital. Counseling is provided by training office staff and department sponsors. Student participants express an interest in the health fields and continue education after high school. Many students request to return to Montefiore during other summers.
Ms. Denise B. Racine, Training Office, Montefiore Hospital, 111 210th Street, Bronx, NY

293 *Summer Employment Programs*--Indian Hill Laboratory and Columbus Laboratory (Engineering and Science)
Columbus, Ohio and Indian Hill, Illinois Locations of Bell Labs
Sec (12) / B / Summers 1968-
/ Bell Laboratories / 75

Candidates are selected from inner-city high schools in collaboration with high school counselors. Financial need, technical interests and aptitude for work in scientific areas are primary criteria in the selection process. The goals of this program are to motivate minority high school students with an interest in math and science to continue their education and to prepare for careers in science and engineering. Summer employment programs give the students laboratory experience in several technical areas. They work with Bell Labs engineers and technicians, are provided with special training for the performance of their tasks, and educational counseling and guidance throughout their employment. Some project participants went directly to universities or technical institutes to continue their education following high school; some returned to Bell Labs as regular employees in a technical field.

294 *Summer Fellowship Program for Minority* Students (Atmospheric Sciences)
National Center for Atmospheric Research, Boulder, Colorado
Coll (14,15) / B, C / 1972-
$136,000 / NSF / 16

The goal of this program is to interest minority students in atmospheric sciences as a field of graduate study, and as a professional career. The methodology includes involvement of students in NCAR research , use of small

group seminar courses on atmospheric sciences, computer programming training, faculty visits from minority colleges, and NCAR staff visits to minority colleges. Some students from the first year are now in graduate school in atmospheric sciences.
Dr. Peter A. Gilman, National Center for Atmospheric Research, P. O. Box 3000, Boulder, CO 80303 494-5151.

295 *Summer Institutes,* Lawrence *Livermore* Laboratory (Science and Engineering)
Lawrence Livermore Laboratory, Livermore, California
Coll / All / 1970-
/ LLL under contract to ERDA / faculty from 43 colleges

The participants were faculty members from colleges with significant or predominantly minority enrollment. The purposes of these institutes is to exchange ideas and provide an opportunity for the faculty members to gain research or project experience while familiarlizing themselves with programs and activities of the Laboratory. Three eight-week institutes were conducted by LLL staff of the mechanical and electronic engineering department, the computation department and the bio-medical division. In 1976 five 9-week institutes were offered in physics, computations, biomedical research, chemistry and materials science, and engineering. Program activities include faculty participation in on-going research activities, lectures, tours, seminars, symposia, familiarlization with new equipment and techniques.
Personnel Department, Lawrence Livermore Laboratory, Livermore, CA 94550

296 *Summer Program for Culturally Disadv*antaged High School Students (Sciences, Mathematics)
Southern University, Shreveport-Bossier Campus, Shreveport, Louisiana
Sec (11,12) / B / Summers 1970-
$48,000 / Various / 305

This six-week summer program at historically Black Southern University is designed to provide disadvantaged high school students with an opportunity to do scientific study or scientific work to meet their individual needs and additionally to acquaint them with college life. Another objective is to stimulate an interest in a career in science. Students are able to select from a variety of course offerings including general chemistry lecture and lab, general biology lecture and lab, introduction to general physics, modern math, computer science and reading. Other activities of the program include field trips, guest lectures and special demonstrations.
Leonard Wilmer, Southern University-Shreveport, Shreveport, LA 71107

297 *Summer Program for Minority Physics* Students (Physics)
Fermi National Accelerator Laboratory, Batavia, Illinois
Coll, Grad (15-) / B, C, N / Summers 1971-
$80,000 / Fermi / 112

The goal of this summer program is to stimulate minority students to pursue professional careers in science. Scientific lecture series are given during the summer; job assignments of students are carefully matched to their needs,

ability and interest; and mini courses are offered. Students write reports on their summer assignment and also give a short presentation. Students have done well on job assignments and related activities. Over the past programs, a number of students have continued in the science field, found jobs related to science, and entered into graduate school to further their education in science. The programs have been quite successful and improved considerably every year in giving the students more knowledge in the scientific discipline.
Warren F. Cannon, Acting Manager, EEO & Community Relations, P. O. Box 500, Batavia, IL 60510 (312) 840-3415

298 *Summer Research Program (Bioc*hemistry)
Department of Biochemistry, Cornell University, Ithaca, New York
Coll / B / Summers 1970-1973
$15,000 / NSF / 15

Lectures and seminars were given at a number of predominantly Black institutions. Program candidates from these institutions were identified and recommended by their instructors. The purpose of the program was to provide intensive summer research experience to a group of gifted students. Although extensive effort was made by project staff in terms of establishing contacts at the institutions and developing a working program, the program was not continued because of inability to obtain funding from federal or private sources.
Dr. J. M. Calvo, Section of Biochemistry, Molecular and Cell Biology, Division of Biological Sciences, Wing Hall, Cornell University, Ithaca, NY 14850

299 *Summer Research Programs* for Minorities and Women (Science and Engineering)
Bell Labs, Murray Hill, New Jersey
Coll (15,16) / All / 1974-
/Bell Labs / 124

Candidates must have demonstrated interest and motivation in scientific fields, must supply information on their scholastic achievements and letters of recommendation. The goals of this program are to attract female and minority students, above the college sophomore level, into scientific careers through close working contact with experienced scientists and engineers. Participants are offered ten weeks of summer employment doing useful laboratory assignments of a wide variety with a selected BTL mentor.
Ms. Eleanor Wilson, Technical Employment Department, Bell Laboratories, 600 Mountain Avenue, Murray Hill, NJ 07974

300 *Summer Science 1*969 (Physics)
Lac Courtes Oreilles Chippewa Indian Reservation, Reserve, Wisconsin
Elem (5-8) / N / August 1969
$8000 / OEO / 20

The purpose of this four-week summer program was to interest and educate rural Indian boys in elementary electricity and electronics--developing an interest which could one day carry the participants to careers in electronics technology or engineering. The boys were given classroom instruction centering around a series of electrical and magnetic gadgets (motors, buzzers, telephones, etc.), any devices from which they could learn about electricity. [Note: Dr. McVoy carried out a similar program in 1968 at Santa Clara Indian Reservation (N.M.) in collaboration with Dr. R. Burman of Los Alamos.] Dr. K. W. McVoy, Department of Physics, 2531 Sterling Hall, 1150 University Avenue, Madison, WI 53706

301 *Summer Science Program* for Minorities (Health)
Metropolitan State College, Denver, Colorado
Coll / B, C / Summer 1975
/Metropolitan State College / 30

The goal of this program is to increase the number of Chicano and Black health professionals. This summer science program for minorities consists of small intensive study classes in chemistry, physics, and biology. Approximately half of the eight hours of required class time is spent in intensive tutorial sessions. The teacher assistants and the professors are available on a continuous basis throughout the entire day. One of the most important aspects of the program is a two credit-hour seminar entitled "Problems of Minorities in Health Related Fields." Lectures are given by various people from the community. Visits to area health centers and films relevant to minorities and health are part of the program.
Stanley G. Sunderwirth, Dean, School of Science and Mathematics, Metropolitan State College, 250 West 14th Avenue, Denver, CO 80204

302 *Summer Science School* (Science and Technology)
9 Bell Labs Locations in 1975: Holmdel, Murray Hill, Raritan River and Whippany, New Jersey; Allentown, Pennsylvania; Columbus, Ohio; Guilford Center, North Carolina; Indian Hill, Illinois; Merrimack Valley, Massachusetts
Sec (9) / All / Summers 1970-
/Bell Laboratories / 250

Students are recommended for participation by their school principals and guidance counselors. The goals of this program are to provide junior high school minority students with exposure to science and hands-on laboratory experience with technical guidance, and to stimulate interest which could help to develop career aspirations in scientific fields. In a two-week summer program, students are given an opportunity to work on a one-to-one basis with engineers, chemists, physicists and other technical personnel. They also are brought together for field trips, tours, lectures, films, demonstrations, etc. One location (Murrary Hill) also has a Host Family Component where student participants live with BTL families during the 2-week program.

303 *Summer Science Seminar* (Science and Engineering)
San Jose State University, San Jose, California
Sec (10,11) / / Summers 1962-1964, 1967
$40,000 / Local Industry / 134

The purpose of this program was to stimulate an interest in academic improvement in underachievers and to heighten interests in careers in science and

engineering. The program was also aimed at curtailing drop-out tendencies and at improving the community image of science and engineering. The participants were involved in four week (1962) or two week (1963-64 and 67) 5 day on-campus programs which included lectures on technical subjects followed by laboratory demonstrations or experiments in which the students participated, field trips to local industries, research laboratories and test installations, all geared toward stimulating an interest in science and engineering. Students lived in the dormitory and returned home on weekends. Reactions of all involved were quite favorable to this project. Project director cautioned that selection of seminar teacher must be made very carefully since this person is essential to the success of the program.
Edward A. Dionne, School of Engineering, San Jose State University, San Jose, CA 95192 (408) 277-3303

304 *Summer Work-Study Program* (Applied Physics, Electrical Engineering)
Lincoln Laboratory / MIT, Lexington, Massachusetts
Coll (14, 16) / B / Summers 1975-
$35,000 / Lincoln Laboratory / 19

Names and resumes of students with strong academic backgrounds and interests are solicitied from the traditionally Black colleges. The purpose of the program is to prepare students for admission to the Graduate School of MIT. Students are given exposure to a graduate setting, assignments, relevant courses and preparation of research reports.
Susan Gaskell, Project Coordinator, Lincoln Laboratories, MIT, Lexington, MA

305 *Survival Skills Training* Reinforced with Science Enrichment (Pre-Veterinary) School of Veterinary Medicine, Tuskegee Institute, Alabama
Coll (15, 16) / B, N, P / 1975-
$23,000 / HEW / 15

The objective of the program at this historically Black institution is to eliminate specific academic deficiencies of first-year students of veterinary medicine. Participants were selected from among pre-veterinary applicants -- "high risk" students predicted to become academic casualities. A redesigned experimental summer reading program conceived as a two-phase direct reinforcement program was implemented. The first phase is a 10 week summer pre-entry program designed to remediate fragmentation of science information, integrated with exercises in survival skills and problem solving techniques. The second phase is a continuation of certain reinforcement activities on a supportive basis throughout the first year.
Dr. Eugene W. Adams, Associate Dean, School of Veterinary Medicine,
Tuskegee Institute, Tuskegee Institute, AL 36088 (205) 727-8176/8177

306 *Syracuse University Program for Minorities* in Engineering (Engineering)
College of Engineering, Syracuse University, Syracuse, New York
Coll / All / 1976
$25,000+ / General Electric, Syracuse Univ /

This new program will hopefully go into effect in Fall 1976. It had received partial funding at the time of publication. The program is aimed at improving engineering education opportunities of minority group graduates of New York

State two-year colleges by offering them a chance to earn the baccalaureate degree in engineering from Syracuse University. It is expected that after completion of the two-year college (with remedial work wherever necessary) participants can enter the regular engineering program at the junior year level and complete their training in 2 to 3 more years (depending on their background).
Bradley J. Strait, ECE Dept., 113 Link Hall, Syracuse University, Syracuse, NY 13210 (315) 423-2652

307 *Technology - People - Environment* (Technology)
College of Engineering & Applied Sciences, SUNY Stony Book, New York
Prof (Tch Ed) / All / 1970-
/ Exxon, AT & T, NSF / 1500

This unique multi-media program is developed in a mini-course format. This curriculum project resulted in a program for all secondary school students who have been academically unsuccessful. It is a non-textbook, activity-oriented, multi-disciplinary approach to science, math, language arts and social studies. The goal is to teach the systems Approach to Decision Making in the area of Technology - Society - Problems. Writers, recruited from among teachers who were teaching The Man Made World in inner city schools, developed 200 one and two day activities grouped into 10 mini-courses. The project has been successful in attracting minority students into the course.

308 *Third College* (Natural and Applied Sciences, Pre-Medicine)
University of California, San Diego, La Jolla, California
Coll / B, C, N / 1969
/ University of California, NIH (MBS), Ford Foundation/200

The University of California, through its regular institutional procedures and arrangements has sponsored and funded the efforts of Third College to increase minority enrollments in science majors as an integral and cental component of the academic plan and objectives of Third College. The Ford Foundation and the National Institutes of Health-Biomedical Support Program have provided supplemental support. The goals of Third College are the education of large numbers of minority students. Special emphasis is placed on those disciplines in which minority underrepresentation is most severe, for example, the sciences, health professions and the more quantitative areas of the social sciences. In the sciences, the goals are to develop a lower division program in mathematics and natural science which would prepare minority students (and non-minority students) for academic competition with students from other colleges in upper division courses and admission to graduate and professional schools.

Present methodology may be briefly described as follows: (1) recruit and admit minority students who are either regularly admissible to the University of California or who come reasonably close to meeting the admissions criteria; (2) measure the level of mathematics competency of all new Third College students by a mathematics placement examination. Design and offer a pre-calculus sequence from which students, depending on their individual mathematics skills, may take from one to three quarter courses before entering a campus-wide calculus course; (3) offer chemistry and physics sequences of four quarter courses each, of which students may enter at either the first or second course levels of each sequence depending on their level of mathematics and science preparation; (4) provide considerable faculty and staff monitoring and advising of students on an individualized basis.

The project has accomplished the desired goals only in part. In terms of the sciences, the goals are to produce substantial numbers of minority students who are competitive with other college graduates in their rates of admission and successful completion of medical and other graduate and professional school programs. The basic approach appears to be sound and effective. However, the numbers of minority students in the program are not large enough and the amount of support and resources available to the program is inadequate for achievement of the desired level of excellence and size.
Dr. Joseph W. Watson, Provost, The Third College Provost Office, University of California, La Jolla, CA 92093

309 *Three-Two Science* and Engineering Program (Engineering)
Huston-Tillotson College and The University of Texas at Austin, Texas
Coll / B / 1974-
Zero / - /12

This dual degree program was designed to increase the number of Black engineers in this country. A large state-supported university and a small liberal arts college cooperate to offer a combined science and engineering degree program to students of the predominantly Black college.
Dr. Exalton A. Delco, Jr., Huston-Tillotson College, Austin, TX 78702, (512) 476-7421 X220

310 *Three-Week Summer* Program in Engineering for Minority High School Students (Engineering)
University of Massachusetts, Amherst, Massachusetts
Sec (10,11) / B, P / Summers 1974, 1975
$50,000 / Univ of Massachusetts / 60

The participants for this program were selected on the basis of the student's general academic standing, proficiency in science and mathematics, extra curricula activities and letters of recommendation. The goals of this program were to enable the students to become acquainted with the various fields of engineering and to learn the type of effort required for college students. During the three-week summer program, the students take a number of minicourses related to such engineering topics as surveying, manufacturing, design, computers and elctronics. About 75% of the graduates of the program are pursuing an engineering curriculum in college.
Dr. John E. Ritter, Jr. Mechanical Engineering Department, University of Massachusetts, Amherst, MA 01002 (413) 545-2424

311 *Training Program in the Pre-Health* Professions (Pre-Health-Biology, Chemistry, Mathematics)
Bishop College, Dallas, Texas
Sec (12, 12+) / B / 1975-
$1,2000,000 thru 1980 / Various/ 25 (now)

The purpose of this program is to make early identification of students with

interest in and potential for pursuing health professions. High school students attend historically Black Bishop College every other Saturday to participate in scientific experiences in the classroom and laboratory. Twenty-five students are selected from among the participants in the Saturday sessions for a summer Health Professions Program of extensive training in molecular biology, chemistry, math and English. The top 12 students from this summer program are awarded full scholarships to pursue training in health professions at Bishop College. The remaining students are awarded a financial support package including grants, work-aid and loans.
Dr. Edison R. Fowlks, 3837 Simpson Stuart Road, Dallas, TX 75241 (216) 376-4311 Ext. 286

312 *Transitional Summer Program* (Health)
Brown University, Providence, Rhode Island
Coll (13) / All / Summers 1969-1975
$231,000 / Brown Univ / 210

The goals of this program were to ease the changeover from secondary school to college; to gain understanding of the rigorous expectations of the academic year; to strengthen background in math and sciences in preparation for concentrations in those areas. Participants, self-selected from a group of minority students admitted to Brown, were enrolled in three to four courses according to their diagnostic exam results and interest; seminars, workshops and field trips were planned to enhance the classroom experience. Individual counseling sessions were conducted by the faculty, staff and director for additional academic and personal counseling adjustments. Short term goals of personal, cultural and social adjustment to Brown community have been realized. Long range goals of acquiring a Brown degree will have to be assessed at a later date.
Bettye J. Ward, Assistant Dean of the College, Box 1875, Brown University, Providence, RI 02912 (401) 863-2444

313 *Tuskegee Institute - Iowa* State Cooperative Agreement (Forestry)
Tuskegee Institute / Iowa State University, Ames, Iowa
Coll (15-16) / B / 1976
/Iowa State University

This cooperative agreement is part of a continuing relation between these two institutions. Other activities have included an Iowa State visiting professor. Participants in this program will be students completing two years of training in pre-forestry at Tuskegee. Students desirous of continuing in a forestry program may enroll at Iowa State to study in Forest Resource Management, Forest Products or Outdoor Recreation Resource Management. Iowa State will provide financial support for eligible applicants. Counseling will be provided concerning both academic and career adjustment matters. The agreement will possibly be extended to other minority institutions with pre-forestry programs.
Dr. Larry R. Shannon, Assistant to the Dean, The Graduate College, 201 Beardshear Hall, Ames, IA 50010

314 *UCI-MITE* '75 (University of California at Irvine-Minority Introduction to Engineering) (Engineering)
University of California at Irvine, California
Sec (12) / C / August 1975
$12,000 / Engineer's Council for Professional Development / 32

This UCI-MITE program (a residential summer program between 11th & 12th grade) was designed to increase an awareness of engineering as a professional career for Chicano youth. After applicants were identified, bilingual home visits involved the families. The two-week on campus dorm program featured lectures, laboratories, field visits to engineering activities and conferences.
Professor Paul D. Arthur, Department of Mechanical Engineering, University of California at Irvine, Irvine, CA 92664 (714) 833-5820

315 *UICC Minority* Engineering Program (Engineering)
University of Illinois at Chicago Circle, Chicago, Illinois
Coll / All / 1971-
$22,000 (1975-76) / College of Engineering Education Assistance Program / 250 (1975-76)

The goals of the program are to increase the number of minority engineering graduates to a level proportional to the Chicago area population of minority individuals. A staff person visits area high schools and interviews students with an interest in engineering. The students' credentials are analyzed for evidence of aptitude. Special courses have been developed to provide work that prepares deficient students for the regular curriculum. Academic and personal counseling, industrial tours, speakers, seminars and meaningful summer or part-time work are part of the program. A student Association of Minority Engineers provides tutorial and communication services, and a social support system. The tutorial lab receives support in the form of graduate assistants' time in addition to voluntary student participation.
Clifton Powell, Office of the Dean, College of Engineering, University of Illinois at Chicago Circle, Box 4348, Chicago, IL 60680

316 *Undergraduate Research Training Program* (Biological Sciences)
The University of Tennessee--Oak Ridge Graduate School of Biomedical Sciences, Oak Ridge, Tennessee
Coll (15-16) / B, C / Summers 1971-
$500,000 / Carnegie Corp., NIH / 79

The purpose of the project is to introduce undergraduate students at minority institutions to research as a possible career opportunity. Rising sophomores and juniors are invited to spend 10 weeks of the summer in the Biology Division of Oak Ridge National Laboratory. Students work in laboratories with Division staff members on ongoing research projects. At the end of the summer, students make an oral report of achievements for the summer. While in the program, students have an opportunity to participate in biological science lecture courses, group demonstration laboratories and biological science seminars.
Dr. Franklin D. Hamilton, The University of Tennessee--Oak Ridge Graduate School for Biomedical Sciences, Biology Division, ORNL, Oak Ridge, TN 37830
(615) 483-8611 X 3-7642

317 *University Community Ed*ucational Programs (Chemistry, Physics, Mathematics)
University of Pittsburgh, Pittsburgh, Pennsylvania
Coll (13) / B / 1968-
$429,000 (FY 1976) / U of Pittsburgh / 1300

The intent of this program is to provide an higher educational opportunity for those minority students who have been traditionally excluded from the arena of higher education. The program was implemented by establishment of academic and academic support (counseling) components to facilitate students' mediation of University curricula. Formal quantitative evaluation has yet to occur; however, there have been non-quantitative evaluations.
Dr. Joel Reed, Acting Director UCEP, 1801 Cathedral of Learning, University of Pittsburgh, Pittsburgh, PA 15260 (412) 624-6588

318 *University of Colorado-North* High School College Motivation Program(Physics)
University of Colorado, Boulder, Colorado
Sec (11) / C / Summers 1969-
$63,000 / Max C. Fleischman Foundation, University of Colorado, Denver Public Schools / 157

The purpose of this program is to motivate capable Mexican-American high school students to consider the possibility of attending college. Students attend a four week summer program on Boulder (University of Colorado) campus where they participate in discussion groups, lectures, laboratory projects and educational recreational trips. There is follow-up during the next school year with tutoring and help in applying to college.
Professor Willard R. Chappell, Department of Physics and Astrophysics, University of Colorado, Boulder, CO 80302 (303) 492-6952

319 The *University of Iowa* Contribution to the CIC + Midwest Program for Minorities in Engineering (Engineering)
University of Iowa, Iowa City, Iowa
Sec / B, N / 1975-
$12,199 / CIC+ MPME, University of Iowa / 75

The target groups were students, teachers, counselors, school administrators and associated community leaders at three high schools in Cedar Rapids and in a school in Sioux City with heavy Indian enrollment. The project focuses on the problem of reaching minority high school students in the small city environment. Initial contact is made with school administrators, and through them with teachers, counselors, and community leaders. The university conducts a series of meetings with these individuals at schools and on campus. Teachers hold regular programs for students and mail them special materials. Four minority engineering students are a part of the school visitation team. Minority students are invited to attend regular engineering college functions, to participate in the annual honors workshops, and to attend summer preparatory courses.
Dr. Arthur F. Vetter

320 *University of South Dakota Sate*llite Nursing Program (Nursing)
Oglala Sioux Community College, Pine Ridge, South Dakota
Coll (13, 14) / N / 1974-
$100,000 / NIH, Indian Health Service / 20

The participants in this program were obtained by individual application. The stated goals of this program are to provide Indian nurses and nurses for reservations who will and can successfully assist others to attain and maintain a

higher optimal health status and take pride in their Lakota heritage. Students are required to take the nursing and science courses along with on-the-floor clinical experience in the P.H.S. hospital located in Pine Ridge. Out of the original first two classes, four students dropped out for personal reasons; one wishes to re-enter; two transferred and one will return; three will graduate June 25, 1976 and take State Board Examinations and one will take her State Boards in February. The staff indicated that lack of science instructors is the most pressing problem and expressed the need for full staffing of the program. There are presently only two nursing instructors and no science instructors,which means that students must at times travel over 100 miles or more to take science courses.
Ms. Catherine Jenkins, Acting Director, Box 861, Pine Ridge. SD 57770 (605) 867-5856.

321 *Urban Chemical Technology* Intern Program (Chemistry)
Merritt College, Oakland, California
Coll / B, C / 1973-1975
$92,000 / HEW (FIPSE) / 45

This program was intended to, in an 18-month period, prepare under-achieving minority and women students and veterans for careers in chemical technology. A six-month basic skills program was undertaken during the last half of senior high school. This was followed by an intensive six-month chemical technology program and a subsequent six-month internship in the chemical industry. Those students completing the program who desired to continue working as chemical technicians are currently employed.
John J. Holleman, Merritt College, 12400 Campus Drive, Oakland, CA 94619 (415) 531-4911 X 205.

322 *Urban Science Intern* Teaching Project (Science Education)
Inner-city schools in the Los Angeles Unified School District, California
Prof / B, C / 1972-
$720,000 / Various / 131

The goal of this program was to identify, educate, and place individuals who have an interest in, and aptitude for teaching science to the "educationally uninvolved" student in ethnic minority communities. A three-phase screening procedure was developed: 1) candiates visited inner-city schools and reported their impressions of the education process observed, stating why they wished to teach in that kind of educational environment; 2) candidates observed a film on a critical teaching situation and discussed how they might handle such a situation with a committee of judges comprised of inner-city teachers, principals, and lay persons; 3) after successfully completing the previous two screening procedures, the remaining candidates actually taught a short lesson in a role-playing situation with students. The result of this three-phased screening procedure was the selection of 15-30 candidates annually from approximately 300 applicants.

The educational program was designed in a journeyman-apprentice mode in which candidates were assigned to carefully selected master teachers with whom they spent the first semester as teacher assistants and the second semester as intern teachers. The majority of their educational coursework was derived through this personal contact with their master teachers. All candidates who successfully completed the screening and education program were placed in inner-city schools. At the end of last year, 58 individuals fitting this category had been

trained and placed and all but five are still teaching in the inner-city environment.
Dr. George C. Turner, Department of Science Education, California State University at Fullerton, Fullerton, CA 92634 (714) 870-3877

323 *Visiting Professor Program* (component of Aid to Black Colleges) (Engineering)
Howard University, North Carolina A & T, Prairie View A & M, Southern University, Tennessee State, Tuskegee Institute -- Bell Laboratories, Murray Hill, New Jersey
Coll / B / 1973-
/ Bell Labs / 18 Visiting Professors

The goal of this program is to provide members of Bell Laboratories technical staff on a one-year loan basis to the six traditionally Black colleges which train engineers. A member of the Bell Labs technical staff is provided to each of the six colleges for assignment to the faculty. The Visiting Professor teaches either courses that have been offered before (which releases another faculty member for other assignments) or because of a particular expertise, may be called upon to teach a course not previously offered at the school.

324 *"What People Eat" (F*irst Semester College Chemistry) (Chemistry)
Detroit Institute of Technology, Detroit, Michigan
Coll (13) / B / 1972-
/ DIT, Scholl Foundation, HEW / 210

Participants were college freshmen at DIT (which has a very large Black student population) selected by the admissions office as being mature enough to handle self-paced classes and fairly strong academically. The goal of the program was to teach college level chemistry to students with diverse backgrounds, some of whom are very strong in science, and some of whom had little or no background in science. Classes were self-paced. Strong students were encouraged to finish early. Students with poor backgrounds were given additional help. Approximately one student tutor was available for every ten students. Seventy-five per cent of the students finished the course on time, even though only 60% had had any previous chemistry in high school.
Shirley E. Schwartz, Ph.D., Detroit Institute of Technology, 2727 Second Avenue, Detroit, MI 48201 (313) 962-0830, x246, 347

325 *Xerox Science Consultant* Program (Science Education)
Rochester, New York
Elem (4-6) / B / 1968-
$240,000 / Xerox Corporation / 2000

This is a special volunteer program at Xerox Corporation that brings chemists, physicists, technicians and engineers into inner-city classrooms. The object of this program is to give students a first-hand look at science. Groups of Xerox technical employees travel to Rochester inner-city schools biweekly to conduct science experiments in the classroom. The program provides an outside resource to the teacher and also gives the students the opportunity to meet and interact with a professional scientist or engineer. Xerox provides time off with pay (8 hrs. a month per person), underwrites local travel expenses to and from schools, has provided a lesson plan library and supplies which consultants can borrow. Volunteers are chosen by program committee not only for scientific knowledge and competency but also sensitivity to the children and ability to work with teachers and relate demonstrations to classroom curriculum. Program has been extended to include schools for handicapped youth. There are scientist-volunteers from a diversity of fields and backgrounds including handicapped, women and minority scientists.

James R. Norton, Science Consultant Program Coordinator, 800 Phillips Road,
Building 105, Webster, NY 14580 (716) 422-6829

APPENDIX A

QUESTIONNAIRE ON SCIENCE EDUCATION PROGRAMS FOR MINORITIES

(Please feel free to continue answering any questions on additional sheets)

1. Name of Program ______________________________

2. Location ______________________________

3. Scientific Discipline ______________________________

4. Educational Level: elementary ____ secondary ____ college ____
graduate ____ other __________
Please specify grade or level within category ______________

5. Minority Group(s) Involved: Black American ____ Chicano ____
Native American ____ Puerto Rican ____ Other __________

6. How long did this project last from date of implementation? (Please give dates)
____

7. Who sponsored this project? ______________________________

8. Who funded this project? ______________________________

9. How many individuals participated in the program (total, as well as on a year to year basis)?
____

10. How were the participants for this program obtained?

11. What were the stated goals of this program?

12. Briefly describe the methodology used toward accomplishing these goals.

13. Did the project accomplish the desired goals? Explain.

14. Were evaluation reports of this project prepared? _____ If so, what is

the title of the report? ______________________________
Please send us a copy of this report, if available.

15. What were the yearly and total costs of this project? ______________

____

16. Name of the project officer and/or any person who can be contacted for additional information.

Project Officer ______________________________

Address & Phone ______________________________

____

17. Name, address and phone of respondent if different from (16).

____

____

18. Comments.

19. To project officer or project staff member --
If you had it to do all over again, how would you change the program?

20. Do you think this program is suitable for other educational levels?
Other minority groups? If so, for which levels and groups?

****

Please enclose any materials relating to this project that would assist us. If you have any questions about any part of this questionnaire please contact Dr. Shirley Malcom, Office of Opportunities in Science, AAAS, 1776 Massachusetts Avenue, NW, Washington, D.C. 20036, (202) 467-5761.

APPENDIX B

LIST OF SOME MINORITY SCIENTIFIC PROFESSIONAL ASSOCIATIONS

CHEMISTRY:

National Organization for the Professional Advancement of Black Chemists and Chemical Engineers
President: Dr. William Guillory
Department of Chemistry
University of Utah
Salt Lake City, Utah 84112

DENTISTRY:

National Dental Association
Executive Director: Dr. E. N. Jackson
P.O. Box 197
Charlottesville, VA 22902

ENGINEERING:

Association of Black Engineers and Applied Scientists
Contact: Professor Vassal Johnson
Wayne State University
Detroit, MI 48202

Committee to Increase Minority Professionals in Engineering, Architecture, and Technology (CIMPEAT)
Box 1097
Atlanta, GA 30301

Council of Native American Architects and Engineers
c/o Carleton Rhoades
2431 S.W. 325th Street
Federal Way, Washington 98003

Los Angeles Council of Black Professional Engineers
c/o Benito A. Sinclair and Associates
5768 West Pico
Los Angeles, CA 90019

Puerto Rican Engineers' & Scientists' Society

c/o Chemico
One Penn Plaza
New York, NY 10001
President: Mr. Angel A. Rivera

Society of Hispanic Professional Engineers
P.O. Box 48
Main Office
Los Angeles, CA 90053
President: Rodrigo T. Garcia

Society of Native American Engineers
c/o Professor George Thomas
College of Engineering - Nuclear Engineering
FATE Program (First Americans, Tomorrow's Engineers)
University of Oklahoma
Norman, OK 73069

HEALTH:

National Chicano Health Organization
Executive Director: Mr. John Roybal
1709 West 8th Street, Suite 517
Los Angeles, CA 90017

MEDICINE:

Association of American Indian Physicians
Executive Director: Dr. Don Jennings
1300 McGee Drive
Norman, OK 73069

National Medical Association
President: Dr. Jasper F. Williams
2109 E Street, N.W.
Washington, D.C. 20036

Student National Medical Association
2109 E Street, N.W., Suite 400
Washington, D.C. 20037

NURSING:

American Indian Nurses Association
President: Ms. Martha Primeaux
2241 West Lindsey, Suite 502
Norman, OK 73069

OPTOMETRY:

National Optometric Association
3736 Main Street, Box F
East Chicago, IN 46312

PHARMACEUTICS:

National Pharmaceutical Association
Howard University
Washington, D.C. 20001

PHYSICS:

National Association of Black Physicists
Contact: Dr. Ronald Mickens
Physics Department
Fisk University
Nashville, TN 37203

PSYCHOLOGY:

Association of Asian-American Psychologists
Head: Dr. Robert Chin
Department of Psychology
Boston University
Boston, MA 02167

Association of Black Psychologists
Administrator: Ms. Patricia Coppock
P.O. Box 2929
Washington, D.C. 20002

Association of Psychologists for La Raza
Head: Dr. Floyd Martinez
Boulder City Mental Health Clinic
1333 Iris
Boulder, CO 80203

Network of Indian Psychologists
Head: Dr. Carolyn Attneave
Department of Psychology
University of Washington
Seattle, WA 98185

SCIENCE:

National Institute of Science
Executive Secretary: Dr. Shelbert Smith
Department of Chemistry
Central State University
Wilberforce, OH 45384

Organization of Black Scientists
P.O. Box 8715
Washington, D.C. 20011

Society for the Advancement of Chicanos and Native Americans in Science and Engineering
President: Dr. Alonzo C. Atencio
Assistant Dean for Student Affairs
University of New Mexico School of Medicine
P.O. Box 3831
Albuquerque, NM 87110

TECHNOLOGY:

National Technical Association
President: Mr. Edward Taylor
3310 Georgia Avenue, N.W.
Washington, D.C. 20010

APPENDIX C

SUMMARY OF PROFESSIONAL ORGANIZATION INVOLVEMENT

GENERAL ORGANIZATIONS

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE 1776 Massachusetts Ave., N.W. Washington, D.C. 20036 202 467-4496	Committee on Opportunities in Science. Office of Opportuntunities in Science. Clearinghouse for information on minorities, women, and handicapped in science. Project on Native Americans in Science. *Rosters of Minority and Women Professionals*; *The Double Bind: The Price of Being a Minority Woman in Science*; *Inventory of Programs in Science for Minorit Students, 1960-1975*; *Barriers Obstructing the Entry of Native Americans into the Natural Sciences*; and assorted papers.
NATIONAL SCIENCE TEACHERS ASSOCIATION 1742 Connecticut Ave., N.W. Washington, D.C. 20009 202 265-4150	Continuing interest in minority science education; topic occupies major part of each annual meeting program. *American Black Scientists and Inventors*. and other publications.

BIOLOGICAL SCIENCES ORGANIZATIONS

AMERICAN ASSOCIATION OF IMMUNOLOGISTS College of Medicine New York University 550 First Avenue New, New York 10016 212 679-3200 Ext. 2522	Committee for Women and Minority Group Immunologists. Survey of Minority Group Immunologists.

AMERICAN PHYSIOLOGICAL SOCIETY 9650 Rockville Pike Bethesda 20014 301 530-7070	Porter Development Committee. Porter Development Program. Fellowships, institutional improvement visiting professorships, cooperative teaching program.
AMERICAN SOCIETY OF BIOLOGICAL CHEMISTS 9650 Rockville Pike Bethesda, Md. 20014 301 530-7145	Committee on Minorities. Visiting Lecturers. Registry of Minority Group Biochemists.
AMERICAN SOCIETY FOR MICROBIOLOGY 1913 Eye Street, N.W. Washington, D. C. 20006 202 833-9680	General placement service with optional minority identification.
BOTANICAL SOCIETY OF AMERICA New York Botanical Garden Bronx, N.Y. 10458 212 220-8626	Plans to include questions about minorities programs at graduate degree-granting institutions in next edition of Guide to Graduate Study in Botany in the U.S. and Canada.

PHYSICAL SCIENCES ORGANIZATIONS

AMERICAN CHEMICAL SOCIETY 1155 Sixteenth St., N.W. Washington, D.C. 20005 202 872-4600	Catalyst of Project SEED. New career brochure.

AMERICAN GEOLOGICAL INSTITUTE 5205 Leesburg Pike Falls Church, Va. 22041 703 379-2480	Advisory Committee to AGI Minority Participation Program. Fellowships, career packets, and other activities.
AMERICAN GEOPHYSICAL UNION 1901 K Street, N.W. Washington, D.C. 20006 202 331-0370	Committee on Minorities and Women.
AMERICAN INSTITUTE OF PHYSICS 335 East 45th St. New York, N.Y. 10017 212 685-1940	Committee on Minorities.
AMERICAN METEOROLOGICAL SOCIETY 45 Beacon Street Boston, Mass. 02108	Committee on Minorities.
AMERICAN NUCLEAR SOCIETY 244 E. Ogden Avenue Hinsdale, Ill. 60521	NEED (Nuclear Engineering Education for the Disadvantaged) Program and Committee. Plans for scholarships through the NEED program.
AMERICAN PHYSICAL SOCIETY 335 East 45th Street New York, N.Y. 10017 212 685-9422	Committee on Minorities.

GEOLOGICAL SOCIETY OF AMERICA 3300 Penrose Place Boulder, Colorado 80301	Committee on Minority Participation in the Earth Sciences.

ENGINEERING SOCIETIES

AMERICAN SOCIETY OF CIVIL ENGINEERS 345 East 47th St. New York, N.Y. 10017 212 PL 2-6800	Committee on Minority Programs developed and organized program guides; many local chapters involved. ASCE/Notre Dame Camp-Scholarship Program.
AMERICAN SOCIETY FOR ENGINEERING EDUCATION Suite 400, One Dupont Circle, N.W. Washington, D.C. 20036 202 293-7080	Black Engineering Colleges Development Committee. American Indians in Engineering Committee and Demonstration Project. Task Force on Minorities in Engineering.
ENGINEERS' COUNCIL FOR PROFESSIONAL DEVELOPMENT 345 East 47th St. New York, N.Y. 10017 212 644-7685	Provides facilities and support for the national headquarters of ME^3 (Minority Engineering Education Effort). Administers MITE (Minority Introduction to Engineering) summer programs for minority pre-college youth.
AMERICAN SOCIETY OF MECHANICAL ENGINEERS 345 East 47th St. New York, N.Y. 10017 212 644- 7650	Projects: a brochure and career guidance kit, Making It in Engineering.

ENGINEERS JOINT COUNCIL 345 East 47th St. New York, N.Y. 10017 212 644-7850	*Roster of Women and Minority Engineering Students*.
INSTITUTE OF ELECTRICAL & ELECTRONIC ENGINEERING 345 East 47th St. New York, N.Y. 10017	Committee on Education has broad interest in minorities and women.
NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS 2029 K St., N.W. Washington, D.C. 20006 202 331-7020	Task force to identify problems decided to work at local level. Some local chapters involved through Community Action Programs.

MEDICAL ORGANIZATIONS

AMERICAN ASSOCIATION OF COLLEGES OF PHARMACY 4630 Montgomery Ave., Suite 201 Bethesda, Md. 2-014	Prepared *Recruiting Minorities for Pharmacy--A Guide.*
ASSOCIATION OF AMERICAN MEDICAL COLLEGES One Dupont Circle, N.W. Washington, D.C. 2-036	Office of Minority Affairs. *Thirty-Three Programs to Increase Educational Oprortunity for Minorities in the Health Professions*. *Minority Student Opportunities in U.S. Medical Schools*.

AMERICAN MEDICAL ASSOCIATION/EDUCATIONAL AND RESEARCH FOUNDATION 535 N. Dearborn St. Chicago, Ill. 60610 312 751-6000	AMA-ERF Medical Student Opportunity Loan Guarantee Plan.

OTHER ORGANIZATIONS

AMERICAN MATHEMATICAL SOCIETY P.O. Box 6248 Providence, R.I. 02940 401 272-9500	Committee on Affirmative Action Procedures. Committee on Employment & Educational Policy. AMS-MAA & SIAM Joint Committee on Employment.
AMERICAN PSYCHOLOGICAL ASSOCIATION 1200 Seventeenth St.,N.W. Washington, D.C. 20036 202 833-7600	Committee on Equality of Opportunity in Psychology. Minority Fellowship Program.
ASSOCIATION OF AMERICAN GEOGRAPHERS 1710 16th St., N.W. Washington, D. C. 20009 202 234-1450	Committee on Minorities. Sponsored project on Geography and Afro-America. Black Towns Project.

Alpha # (or page)	Alpha Listing	Field
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